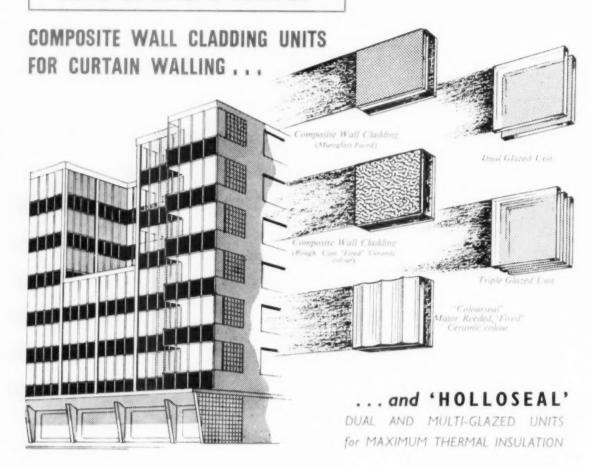
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THE ARCHITECTURAL REVIEW VOLUME CXXIV NUMBER 738 JULY 1958 FIVE SHILLINGS

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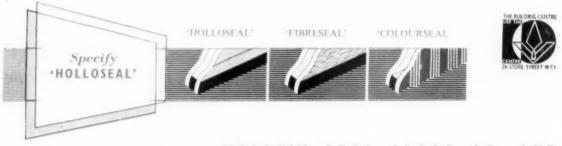
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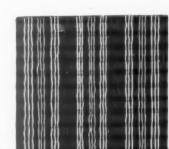


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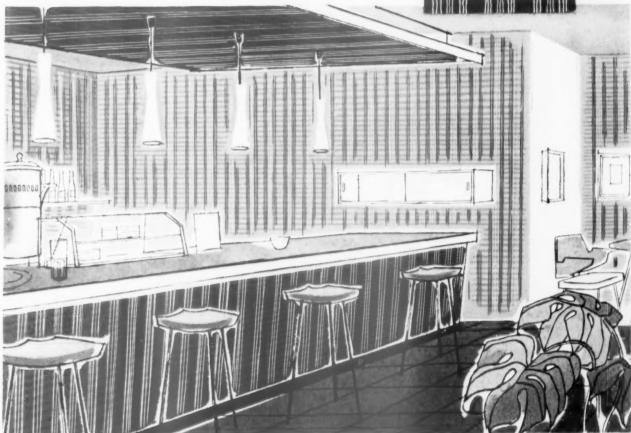


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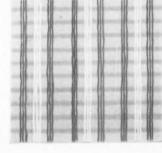
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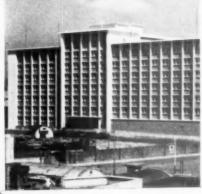
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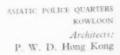




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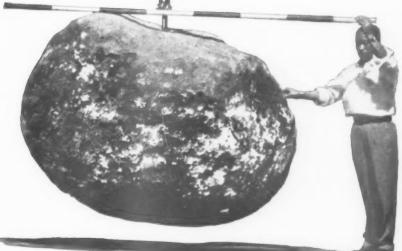
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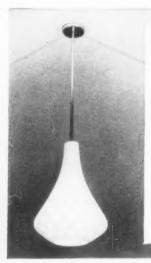


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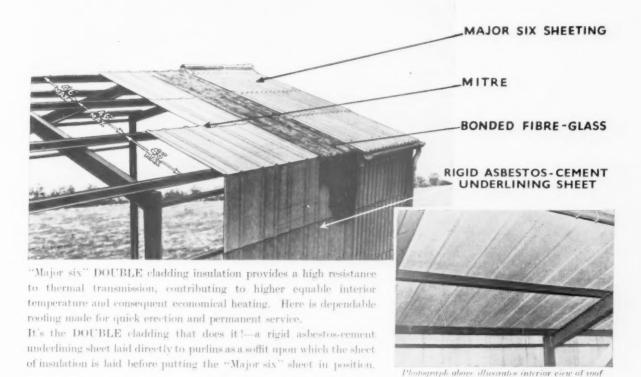
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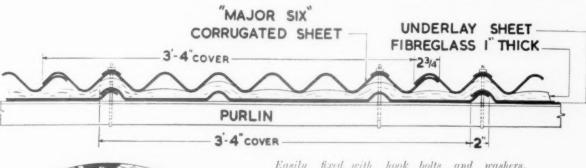
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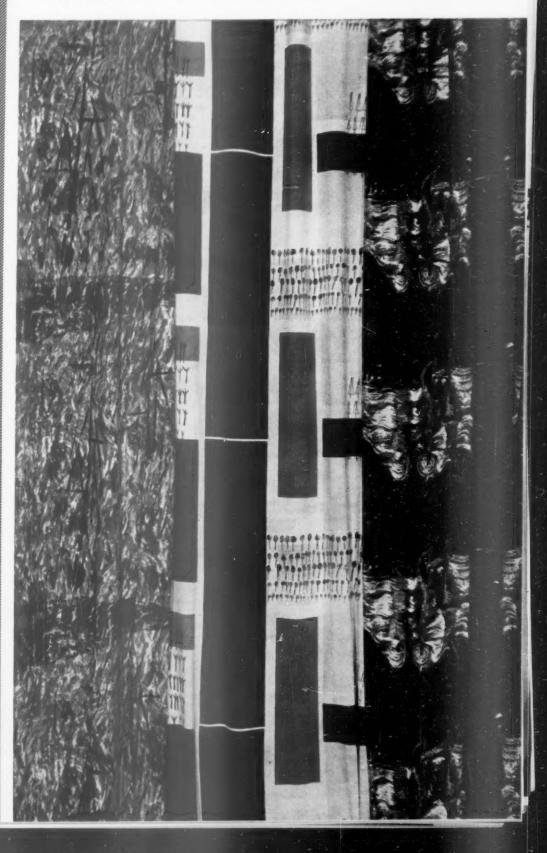
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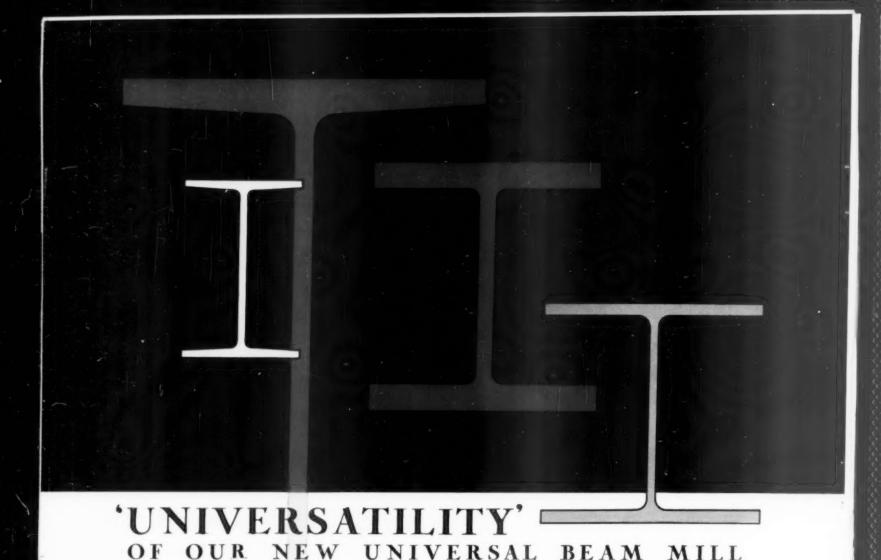
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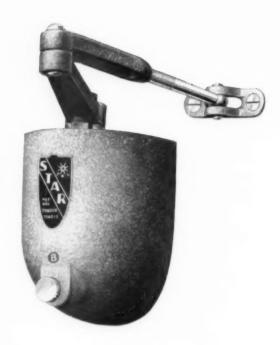


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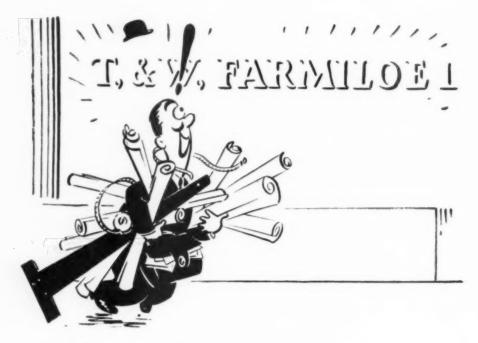
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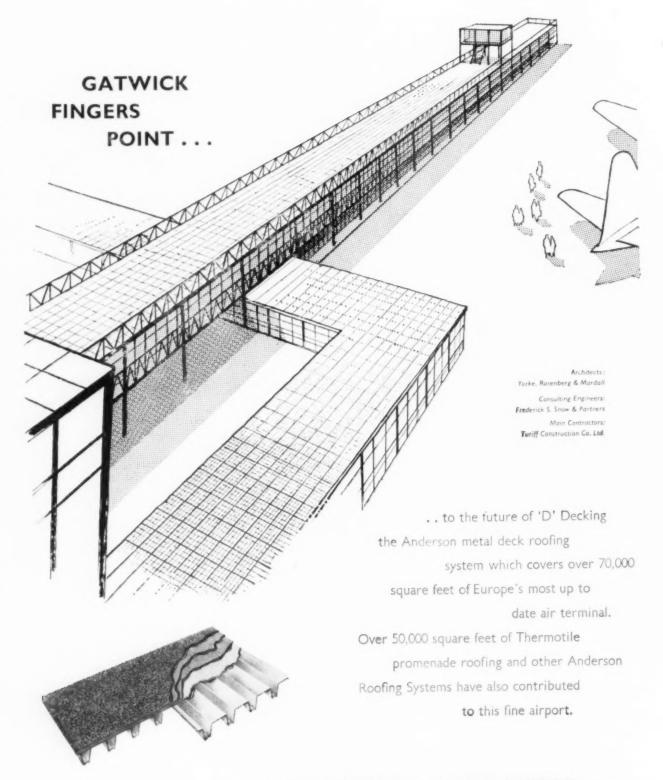
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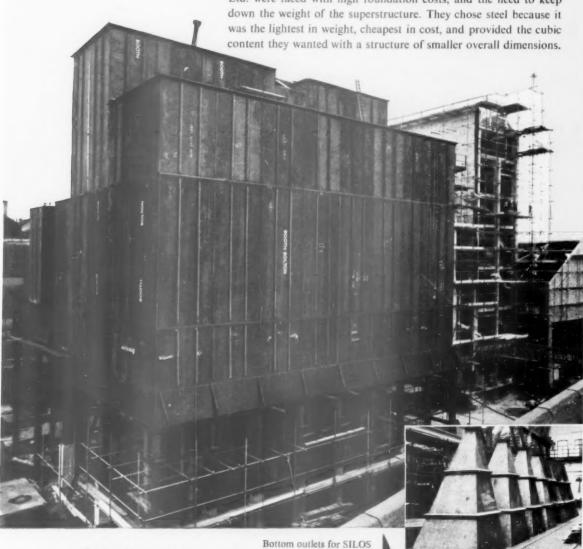
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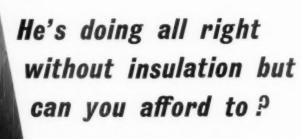
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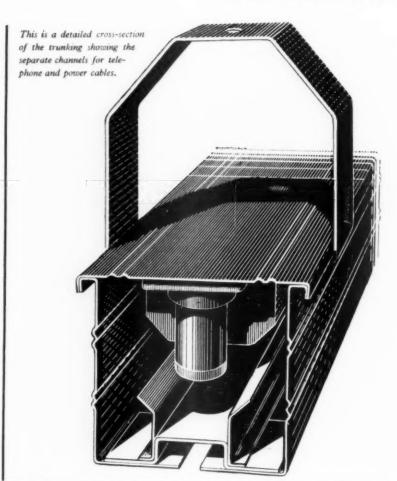
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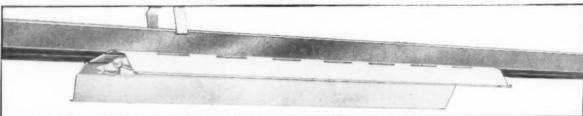
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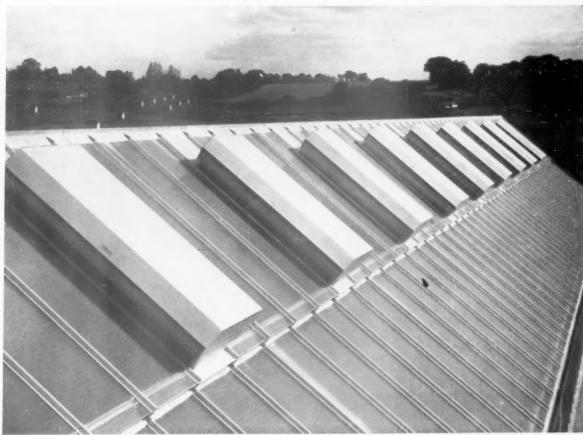
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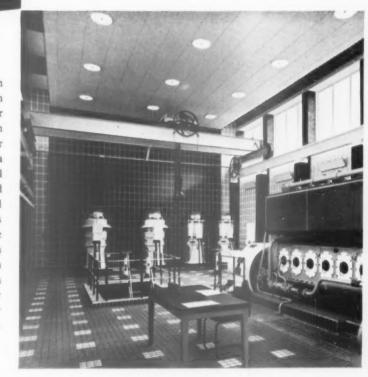
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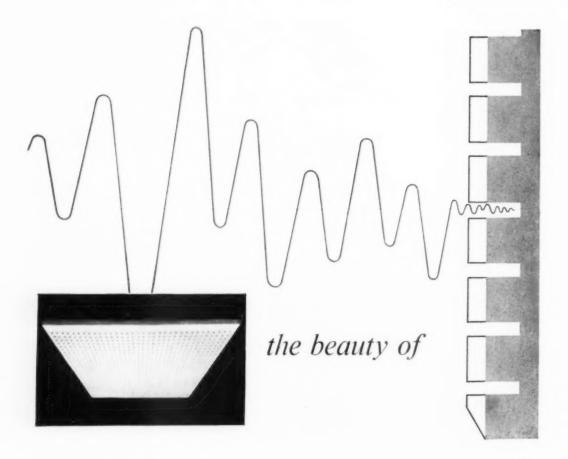








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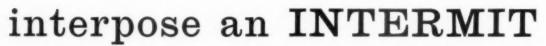
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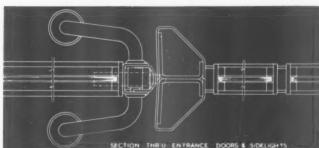
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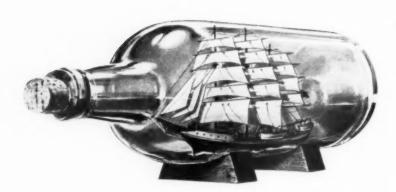


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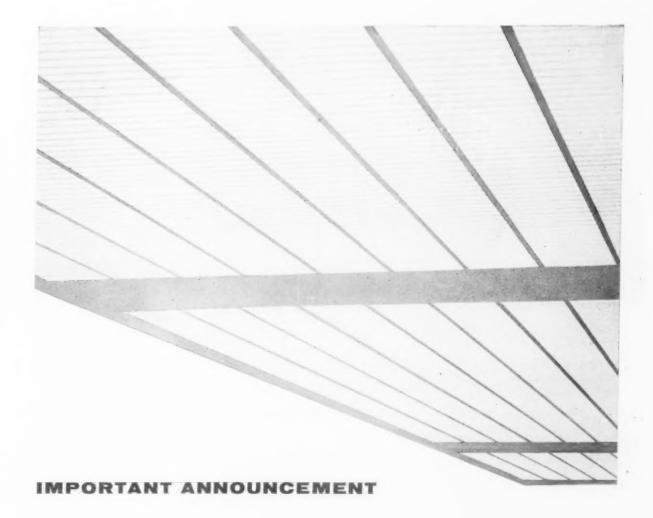


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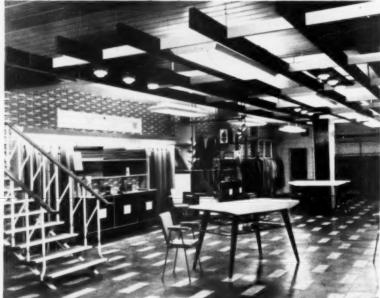
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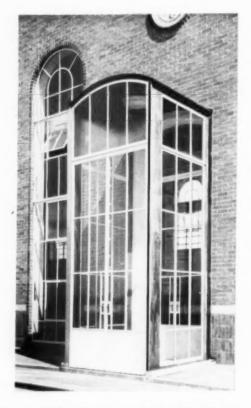
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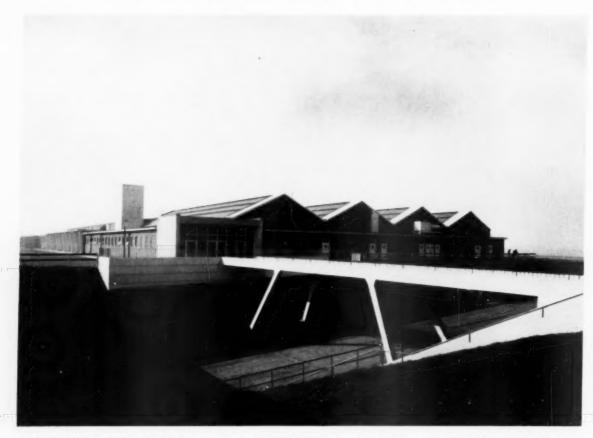




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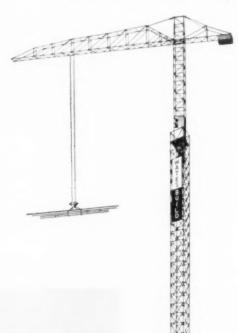
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Consulting Structural Engineer: Felix J. Samuely.

Chartered Quantity Surveyors: Cyril Sweett & Partners.

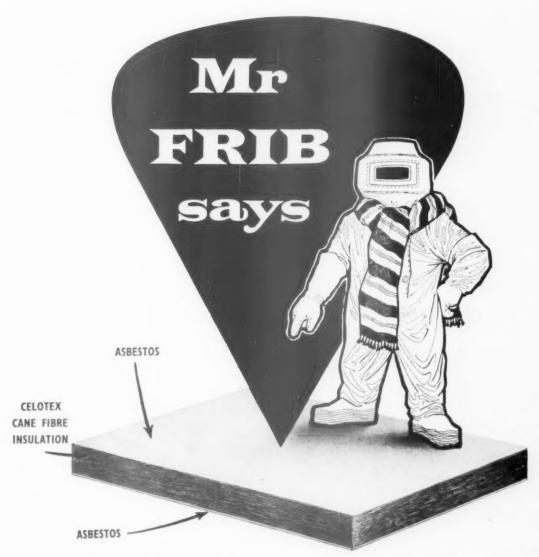
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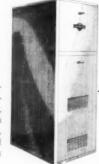
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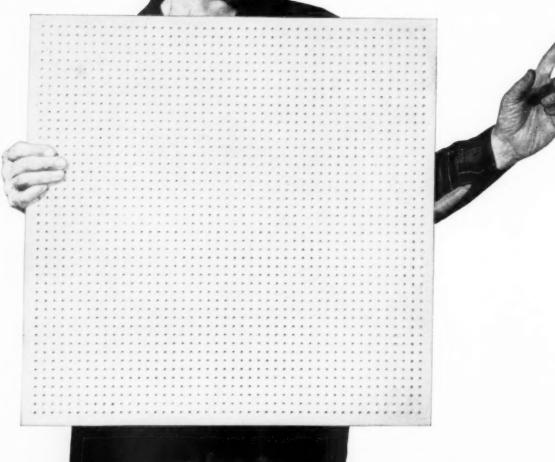
OLDHAM

Consulting Engineers: Frederick Snow & Partners
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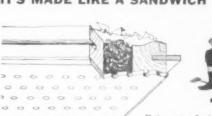


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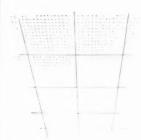
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.40vi	Sound in in them no	-64	59	-71	-77	80	-87	-86	87

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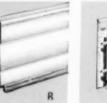
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MARGINALIA

Debord's Paris and Bill's Cinevox

Debord's Paris and Bill's Cinevox

The anathema pronounced on routine town-planning concepts by Asger Jorn in his Fin de Copenhague (AR, Marginalia, October, 1957) is only part of a general onslaught on urbanism by Jorn's connection, an onslaught that has been pursued in another direction by his colleague Guy Debord, from whose map of Paris a section is seen in 1. It shows quartiers d'états d'âme' and 'gradients of psychogeographical drift' factors not generally taken into account by the average planning authority. Nevertheless, this micro-chmatology of the psyche is something to which every town-dweller chinatology of the psyche is some-thing to which every town-dweller can testify, and in a city like Paris, whose very street-names are part of Western culture, it is a more than personal affair that pioneer docu-ment of psychogeography, André Breton's Nuit du Tournesol, which moult on the fee of it to be an ought on the face of it to be an entirely private exercise in crotic topography, can be read with understanding, even by those who have never visited Paris.

In fact, Debord's programme of the programme of the

cultural dislocation is remarkably objective, and his celebrated anti-tilm Hurlements on Faveur de Sade is chiefly notable for the fact that the uproar it creates is designed and predictable. Something like motivation research underlies most of 'Situations' that it is his aim to



precipitate, and snap judgments on the publications of the Situationist International had best be restrained until the documents have been frisked for hidd in persuaders. What looks like a revival of the rather amateur techniques of the Dadaists may well be only protective colouring

may well be only protective colouring for something that is subversive in a more up-to-date manner.

Thus the first proclamation of the German section of the Situationist International, dedicated to Jackson Pollock, Nicolas de Stael, Wols, Dylan Thomas and James Dean, contains at one point the slogan Max Bill muss nach Ulm zurück, which may well come as surprise in view of the known hostility to Bill and his New Bauhaus of the Situationists, and the Bauhaus Imaginists. tionists and the Bauhaus Imaginists. But the present administration at Ulm, under Tomás Maldonado, may

yet prove a higger situation-provoker than they in the world of product design, and in the meantime, Max Bill has produced a situation that is unusually and subtly subversive of established culture, by designing the Cinevax cinema at Neuhausen in an idiom of such impeccable rectitude, 2, that it must seem downright antivisual design by comparison with the wide-screen, technicolor extravawide-sereen, tecl ganzas seen inside.

The Barometer of Milan

We often say that the successive Triennali di Milano are the truest indicators of the climate of progressive opinion in European Architecture, but it is often a matter of months after they have closed before months after they have closed before we can really tell how the mercury is moving. Thus, after being dazzled, impressed and marginally instructed by the section on the History of Building Structure, 3 (designed by Erberto Carboni) it is only now that we realize that it represents a minor revolution in our attitude to the



Middle Ages. Where were the glories of gothic vaulting, with its ribs and panels that inspired Viollet-le-Duc, panels that inspired Viollet-le-Due, Perret, and the rise of patent glazing? Absent, and replaced by the ribless vaults of the Romanesque, and the three-dimensional frame structures of English Gothie York Chapter House on the left (cf. AR, May, 1958) and Ely Octagon on the right. This should hardly surprise us as contemporaries of Candela and Buckminster Fuller, but the mutability of our attitude to the immutable facts of history might perhaps caution us to check our attitude to other bodies of facts for similar barometric disturbances.

Burghley House

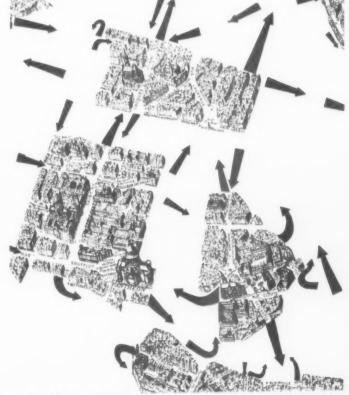
Although it has, in practice, been open to the public for some time now,

Burghley House has recently been given the full (or 'Woburn') treat-ment considered proper when so great a mansion opens its doors to visitors, and there is now a lavishly illustrated booklet available, describillustrated booklet available, describ-ing the house and its contents for the lay public. A more specialized public may well find the booklet worth having as well—if only for the fine page-and-a-half colour spread of Verrio's *Heaven* room, one of the finest splurges of late Baroque illusionistic decoration in Europe. Architectural information is sparse, however, and there is no discussion of the fantastic (but unvisitable) roofscape that has earned Burghley the justified title of the English Chambord, 5.

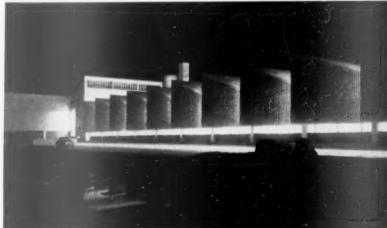


Northlights at the side

In spite of constant extensions to existing plant, the original establish-ments of the Eternit company at Niederurnen have been unable to keep up with the demand for the company's asbestos cement products. and new plant has been built at Payerne, Switzerland, to the designs of Paul Waltenspuhl. The space-



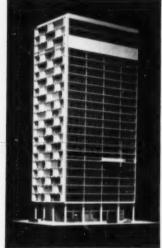
1. section of Dehord's psychoge



requirements of the manufacturing process are stringent, resulting in a work-hall almost five hundred feet work-nail almost live nundred rect long, with a clear span of seventy-five feet. This span is achieved by deep trusses, occupied by north lights, but differing from common usage in this mode of design in that the truss extends beyond its point of support at each end (in order to secure additional bracing) and the opportunity has been taken to extend the glazing as well, and turn it down the face of the wall, thus creating an effect, 4, as if a number of tapered sheds had been fitted into one another.

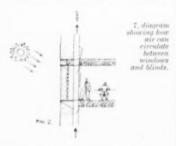
Reidy Fights the Sun

Brazil has become the adopted fatherland of the brise-soleil, whoever it may have been that invented it, and the endless variations that have been wrought upon it have been a part, though far from all, of the proof of the vitality of Brazilian design. Affonso Reidy's project for a new headquarters building for the Monte-pio des Empregados Municipais, a civil servants' pensions fund in Rio de Janeiro, offers yet another variation, 6, combining deeply-finned sections



6. brise soleil in Rio de Janeir

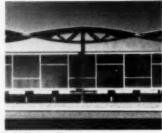
of fixed shading with other areas controlled by adjustable venetian blinds. However, the real refinement of this design lies in the setting of



the whole sun-shading structure, including the roller-boxes for the blinds, a foot or so away from the glazing of the façade, 7, leaving



8, model for a lakeside pavilion,

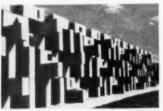


room for cooling air to circulate over the surface of the glass, and ventilate the rooms through openable lights.

Another version of this ventilating-space concept, comparable to the sunshades of J. L. Sert (AR, Mar-ginalia, May, 1958), is seen in the lakeside pavilion that Reidy has designed for an organization with the designed for an organization with the very English-sounding name of The Friends of the Rodrigo de Freitas Lagoon, 8. But this project will come as a great surprise to those who think they know what the Brazilian style looks like, for, in spite of the ultimately Corbusian derivation of the sunshade structure, 9, and the fact that buildings on piles are traditional in the Diamanpiles are traditional in the Diaman-tina district—in spite of all this the whole scheme bears effective witness to the seductive effect that Japanese-Miesian elegancies can have even on the robust Brazilians.

Prefabricated Wall-Sculpture

Though grave doubts were ex-pressed at the time about the rights of the exhibition This Is Tomorrow (AR, September 1956) to flaunt a title so full of claims to prophecy, odd experiments conducted there do seem to have borne fruit. For instance, in banking up part of the site of a new clinic at Bad Salzuflen, Germany, the architect (Harald Deilmann of the



10, sculptured retaining wall at Bad S

Munster Opera-house team) has made use of retaining walls of pre-fabricated concrete elements that fabricated concrete elements that bear a notable resemblance to the sculpture-wall by John Weeks and Adrian Heath at the exhibition. However, it will be noticed, 10, that the Deilmann version has a far bolder plasticity (the earth-retaining function probably needed a deeper structure) than the earlier one, and that the whole structure has a regular pattern of stepped repeats, emphasized by the identification-holes cast into the blocks.

Historian's House

The rather quiet little house, distinguished from many others in Switzerland only by the pattern of its fenestration, which appears in 11, is the work of many distinguished hands some as distinguished as those of Konrad Wachsmann and Le Corbusier—and was designed for one of the leading thinkers of the modern movement, Sigfried Giedion.



If it is hardly what one might have expected under the circumstances, then the blame must be laid squarely on something that is not young architects appear to believe a purely British phenomenon, but operates in most middle-of-the-road democracies—aesthetic control. The full, sad saga of all-too-familar manouvres and obstructions can be found in AC8, the last issue but one of the magazine published for the Eternit company by Girsberger of Zurich, and will be read with sympathy by many.

CORRESPONDENCE

Functional Tradition on the Railways

To the Editors

Whilst I found the article SIRS. Sirs. Whilst I found the article by J.M.R. in the architectural, review, February, 1958, entitled Functional Tradition—Railways, ex-cellent and well presented, I feel that it might have included the ex-Midland Railway Co.'s signalboxes.

These show the early uses of prefabrication and standardization on a

railway system. The box is basically built up of a The box is basically built up of a standard unit (approximately 10 ft. long by 7 ft. high). The unit consists of a complete frame and single mullion. The two panels thus formed each have two horizontal sliding sashes, beneath the cill is a vertically beautiful and a similar, but sashes, beneath the cill is a vertically boarded panel and a similar, but much smaller, panel above the win-dow head. The door unit is simply achieved by removing half a panel (quarter of a unit) and putting in a frame and glazed door.

Quite naturally there were certain

local variations but in the main all boxes were similar. This made construction at the Derby works so much more simple and gave rise to easy replacement of parts. Some remarkable examples exist throughout the Midland Railway



12. signal box at Mill Hill.

Co.'s system but, alas, many are being demolished to make way for modern methods of signalling.

Three curious examples exist in the London area alone. One stands high on wooden stilts: another balances precariously on a slender wooden base (incidentally this box is only a half unit wide!) and the other cantilevers out from a wall.
Yours, etc.,
Peter Bradley.

Mill Hill. London.

Achthamar

To the Editors.

Sirs, —A photograph on page 178 of the March issue of the architec-TURAL REVIEW is described on page representing St. George 179 as representing St. George. Unhappily the sculptor has labelled it (*Theodoros* in large capital letters— the matter is of some indirect import-ance as the oriental legend of St. George makes no reference to dragons.

Yours, etc., CHRISTOPHER HOHLER.

Brooks's.

St. James's Street, S.W.I.

Editors' note. This was a mistake
of the caption-writer and not of the authors.

INTELLIGENCE

The Marquess of Anglesey has become the president of the Friends of Friendless Churches, which was formed in 1957 to save churches and chapels of architectural or historic interest which fall outside the scope of other societies

The British Architectural Students' Association, which was formed to correlate the activities and opinions of architectural students in the British Isles, held its second con-ference at Brentwood in April. Inquiries from students and qualified architects should be sent to t Honorary Secretary, B.A.S.A., Mossley Hill Drive, Liverpool 17.

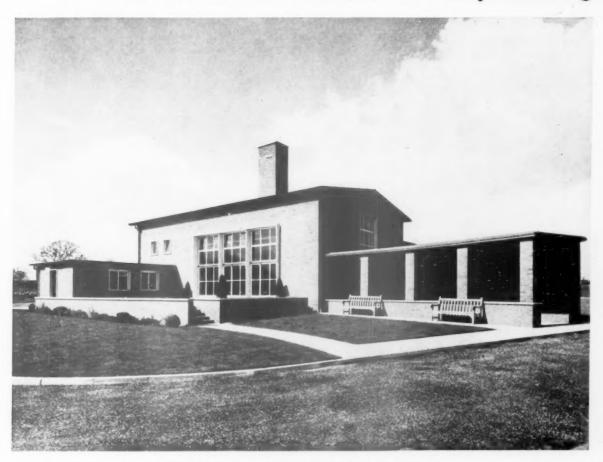
The Annual General Meeting of the Society of Architectural Historians will be held on August 30-31 at the York Institute of Architectural Study. Details will be given in the August AR.

ACKNOWLEDGMENTS

Marginalia, pages 1-2; 6, 8, 9, Aertsens Michel; 12, Galwey, Arphot. Gatwick Airport, pages 9-20; 1, Toomey, Arphot: 2, 4, 6-8, Galwey, Arphot: 3, 5, Deegan Photo, Vienna AND THE GENIUS LOCI, pages 21–24: 1.2,3,5,6, by courtesy of the Trustees AND THE GENTLS LOCE, pages 21–24;
1, 2, 3, 5, 6, by countersy of the Trustees of the British Museum. Shelter for Swimmers, pages 25–29; 1–5, Philip Boucas; 6, Zvonimir Pozgay; 7, Marijan Szabo; 8, 11, Foto Lucca Chmel; 9, 10, Foto Gerlach. Letters, pages 30–34; 1, Galwey, Arphot; 2, 3, 7, 18, 20, 21, 26, Toomey, Arphot; 6, Ernst Scheidegger. The Exploring Eve. pages 35–36; Roderick Cameron. Interiors, pages 37–41; Belgrade Theatre, Herbert K. Nolan. National Film Theatre, Toomey, Arphot; 2, Industrial Handbooks Ltd.; 4, Council of Industrial Design. Object Lesson, pages 43–46; Browne. Arphot. Current Architecture, pages 47–50; Police Headquarters at Coventry, P. W. and L. Thompson. Flatted Fry P. W. and L. Thompson. Flatted Factories at Birmingham, Lewis & Randall Ltd. Miscellany, pages 51– 58: Criticism, Galwey, Arphot; Exhibitions, 2, Arts Council of Great Britain; 3, Ernest Brown & Phillips Ltd.; 5, Camera Press Ltd. Counter Attack, Nairn, Arphot.

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THE ARCHITECTURAL REVIEW



This Month's Cover contrasts two cursive rnis month's Cover contrasts two curave scripts from diametrically opposed extremes of lettering technique—a late Roman stylus hand on papyrus, above, and a neon sky-sign from a club in Nice, below. How far the latter is as proper to its materials as the other, and how far the norms we are evolving for new materials are proper to their employment in architectural lettering. their employment in architectural lettering, are among the subjects discussed in Nicolete Gray's article which begins on page 32.

- 1 Marginalia
- 4 Frontispiece
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THE ARCHITECTURAL REVIEW



This Month's Cover contrasts two cursive scripts from diametrically opposed extremes of lettering technique—a late Roman stylus hand on papyrus, above, and a neon sky-sign from a club in Nice, below. How far the latter is as proper to its materials as the other, and how far the norms we are evolving for new materials are proper to their employment in architectural lettering. are among the subjects discussed in Nice Gray's article which begins on page 32,

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- 37 Interiors: Belgrade Theatre, Coventry: Architect, Arthur Ling (city architect and planning officer)

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- 43 Townscape: Object Lesson by Kenneth Browne The replanning of the multiple road junction at the Elephant and Castle, which serves no fewer than seven of ! andon's bridges, is one of the most promis planning opportunities south of the but—as at Notting Hill Gate (A.k., May, 1958)—the grand design is threw uned by the clutter of signs and street furniture that will be spread over it, sited by the book, and not by eye. Mr. Browne describes and annotates the threat, worsened lesse by the risk of a large, empty round-abow in the centre, ensuring plenty of clear sky for all this impedimenta to allhouette itself against.
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REVIEW ARCHITECTURAL THE

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FIVE SHILLINGS The creation of the Ring on the site of Vienna's old fortifications and the cleared Glacis beyond was a typically abstract piece of nineteenth-century town planning, Baroque in scale, but not in sensibility-planned correspondences such as that between the Schwarzenberg Palace, centre foreground, below, and the open square beyond are all too rare. Yet, by creating a system of ringroads to draw off the traffic if saved the old town, seen clustered around St. Stephen's spire, from being "opened up"-as Dr. Lang points out in her article on page 21. an mizy

HIGH LONDON

Several high buildings are on the way up in London already and more are bound to come (you can't suppress a trend of this kind, whether based on psychological instinct or economic expediency, without depriving a city of its vitality), so the question is not whether London should have high buildings but how and where.

The how—the question of the structural lines along which they are going to develop, the visible form they are going to take—is principally one for architects but also one for their clients; and it is the easier of the two to answer as a matter of defining what is desirable, though the more difficult when it comes to making sure the best architectural line is in fact followed. The second question—where high buildings are to be sited—which is almost wholly one for the London County Council, is far more difficult to answer, but when answered not perhaps so difficult to act upon provided the LCC, as planning authority, give a positive lead.

'Lead' is the strongest word one can use because the LCC's only direct powers are negative ones. They may have their own views as to where high buildings ought to go. Any trained town-planner could mark the most suitable points on a map, and in Moscow the planning authorities have done just that and built skyscrapers at the strategic points of the city where the demands of function and appearance coincide. But the LCC, happily, cannot dictate who shall build where; that is, they cannot compel the owner of a particular piece of land to put up a high building on it just because that might suit the developing pattern of London as a whole.

All the Council can do by force of law is to prevent landowners putting up high buildings in the wrong places. They can, nevertheless, encourage high buildings in the right places by several means: first by example—they can put up high buildings themselves, like some of their tower blocks of flats in the east end, and thereby demonstrate the principles of good siting in relation to neighbouring buildings; secondly by comprehensive planning in advance of commercial development in certain special areas, such as the South Bank, where the Shell building is being put up in accordance with the LCC's own three-dimensional general plan for the area; and finally by the use of devices like the

plot-ratio. By means of the plot-ratio the LCC can make certain kinds of development more profitable, such as mixed hotel accommodation and offices or mixed shops and flats. For such mixed development the LCC allows a higher plot-ratio (that is, a higher ratio of building volume to area of plot), automatically producing greater height if the maximum permitted volume is built. In a more general way the variation of the plot-ratio between one area and another can be employed to restrict high building to parts of London where it is thought to be appropriate.

Controls of this kind are, however, negative, and it may be thought that there is a good deal more the LCC could do in the way of leading the private developer in the direction which suits London as a whole. The LCC get their powers of control from the various planning acts, but by definition planning consists of setting a positive course of action, not of mere restriction. The LCC, as the most powerful local planning authority in the country, could do a great deal of good by setting an example of constructive planning. Over the question of high buildings they could do more to make clear to possible developers where high buildings are desirable in the public interest and where, therefore, applications for planning consent would be kindly received.

For in no field is the wastefulness of merely negative methods of planning control so evident as in that of high buildings. Developers have no alternative at present but to expend time and money preparing plans with but little knowledge of the likelihood of permission being granted, and after permission has been sought and often refused, there is endless timewasting negotiation (involving in many cases the intervention of various Government departments and the Royal Fine Art Commission) before some final decision is reached. It is left to the developer to discover, by the most wasteful possible system of trial and error, what is and what is not permitted.

In order to give developers some more definite guidance about what they would permit where, the LCC would have to commit themselves, as many other authorities do, to a detailed development plan. They would have to break down their area into far smaller units than the large units allocated to particular usezones which is the essence, apart from the pattern of roads and open spaces, of the LCC's present plan. They would have to indicate the ideal future development of each small unit, assessed on its merits. This might seem inequitable as condemning certain property-owners to the status quo and offering all the betterment value to certain others, but that is no more than what happens after the cumbersome process of application and rejection has been gone through. The more recent planning acts allowed for this difficulty in their compensation and betterment clauses, which were right in principle even though, as formulated, they did not work out satisfactorily in

What it comes to is that no planning authority can do its job properly unless it has, somewhere in its mind, a picture of the area it controls as it would like it eventually to become. It cannot and need not compel those who are content with the buildings they possess to build afresh—redevelopment must proceed at its own pace—but it can give those prepared to rebuild a clear lead about the type of rebuilding that is most acceptable.

So much for the planning authority's responsibility to indicate more positively the right and wrong places to build high. In the case of London, however, it is by no means easy to decide which these are, and here the greatest difficulties lie. For example, in theory any town-planner would say that the highest buildings should be alongside parks and other open spaceswhich latter means, in London, the River Thames. But the special character of the London parks makes it necessary to exercise caution about permitting high buildings round them, as the LCC have done. The Royal Parks are unique in any great city in that, standing within them, one has a wonderful illusion of rurality, the skyline being still very largely one of trees. From the centre of Hyde Park the few buildings that do appear above the trees—the turreted roof-line of the Hyde Park Hotel and the row of classical pavilions topping Grosvenor House-do not seriously disturb this illusion. Even a few buildings of greater height would certainly do so.

An awful warning of what to avoid is offered by Central Park in New York, where a once fine park has been surrounded by a cliff of tall buildings, diminishing its apparent size as well as destroying all its rural character. It may be that this must one day be the fate of Hyde Park: that it must lose its special character as London changes from a predominantly horizontal city to one with a degree of vertical emphasis. But we must make certain that whatever losses of this kind become necessary are offset by real gains, and especially that private developers do not exploit the splendid outlook the parks and river offer for their own profit if the result, as far as the public interest is concerned, is all loss. This sense of the vulnerability of London's parks is at the back of several recent rejections by the LCC of projects for high buildings round their edges, notably a couple of proposed hotels, and it was even a factor in the controversy about New Zealand House, a seventeenstorey building now under construction which was objected to when first proposed by, among others, the Ministry of Works because it would be seen from St. James's Park and break the classical skyline presented by the two blocks of Carlton House Terrace flanking the Duke of York's column.

Another difficulty that complicates the high building problem in London is the narrowness of the streets and the traffic congestion caused thereby. The presence of a new building of unusual size, simultaneously dis-

charging hundreds of office workers during the rushhours or, in the case of an hotel, inviting quantities of additional motor-traffic, can increase London's traffic problem intolerably. And a still further difficulty, if not peculiar to London then typical of cities of London's antiquity, is the presence of historic buildings and the existence of a skyline in which they play, and in which public opinion thinks they ought to continue to play, a dominant role. What happens when their interests are disregarded is evident at St. Paul's. Faraday House was built in Queen Victoria Street in the late nineteen-twenties regardless of its effect on the cathedral whose dome it now eclipses from many important viewpoints. This is now generally deplored, and as a result of the destructive effect of Faraday House, a limit is now imposed on the height of buildings within a certain radius round the cathedral.

But this is only one case among many. All over London are sites otherwise suitable for high buildings, which those who value London historically and those who are charged with safeguarding her traditions feel obliged to oppose because of the overpowering effect high buildings would have on the scale and dignity of old buildings in the neighbourhood. The difficult decision has to be taken: how much should the natural commercial development of London be obstructed by considerations of sentiment and of respect for ancient

The preservation of the parks, the problems of traffic congestion, existing buildings and local character are only the most obvious of many factors that the LCC have to take into account when assessing the acceptability of a project which involves building above a certain height (and it should perhaps be made clear at this point that high buildings in London do not mean skyscrapers on the American scale; for the purpose of this essay a high building is taken to be any building of more than about fifteen storeys—the highest proposed in London at the moment is about thirty storeys. Any building between fifteen and thirty, unspectacular though that must seem by American standards, does represent something so foreign to London tradition as to introduce an altogether new architectural element into the landscape).

In order to help them take a balanced view of all these factors, the LCC formulated a couple of years ago a very useful set of principles concerning high building in London, against which any project put forward might be tested. These pose such questions as the possible influence of the project on traffic congestion, on the light, air and sunshine reaching neighbouring buildings and on the skyline, near and distant; the suitability of the site in relation to London's civic and social pattern; the additional density of population it would bring to the area; the established architectural character of the area, the proximity of the proposed building to transport services and open spaces and to historic monuments, and so on. If the plans for a new building provide a satisfactory answer to each of these questions, there cannot be much wrong with the project (on planning, as distinct from architectural, grounds), and this kind of test has the advantage of ensuring that the verdict for or against shall be based on principle.

The LCC are wise not to lay down a more rigid specification for the acceptable skyscraper, for the only rule to follow in a city like London is that each case must be judged independently on its merits. They are wiser still not to have relaxed, in the face of the rising tide of applications for permission to build high, their general upper limit of 100 feet. There must have been a temptation to acknowledge the inevitability of the trend towards increased height by raising the limit to, say, 120 feet, but the fact that every building allowed to exceed 100 feet represents a waiver specially granted after examination of its particular claims, keeps the situation more closely within planning control. And there is the additional fact that a general levelling up would defeat the main purpose as well as being aesthetically disastrous. The pattern to aim at is one of isolated towers judiciously spaced among buildings generally no higher than at present. Indeed, if it works properly, the plot-ratio ought to ensure that the building development immediately surrounding the new towers is a good deal

lower than the maximum now permitted.

Leaving aside the need for a more positive lead generally, it can be said that the LCC system of ad hoc control is allowing building projects of more than the normal permitted height to go forward on several sites that are very well suited to them. An example is the Seven Dials area east of Charing Cross Road, a somewhat seedy commercial district not yet brought within the orbit of big business but obviously due to be redeveloped soon. Thorn Electric will be rewarded for their enterprise in building a sixteen-storey office building there, by seeing the next comers compelled to defer to the rights of light and air that they will have established. And another example is Millbank, just down stream from the Tate Gallery, where the very high office block (well over twenty storeys) which has just been given planning consent will have the many advantages its open Thames-side site creates for it and will provide the London landscape with a vertical punctuation mark just where it is needed to stop the long, dull horizontal line of Thames House and Imperial Chemical House as seen from Westminster Bridge.

Conversely the same system of control has undoubtedly stopped a number of undesirable developments, though it is less easy to be positive about these because opinions vary about the proper balance to be struck between preserving the status quo and encouraging every kind of unorthodoxy in order not to inhibit vitality. Moreover, there are legitimate complaints that controls intended as a brake bring the whole machinery to a standstill because of the complications of the procedure involved. The slow sequence of submission, rejection, resubmission, consultation with the Royal Fine Art Commission, appeal to the Minister, inquiry, reconsideration and so on ad infinitum unnecessarily discourages initiative. It is also expensive, not only because of the time taken but because of the wasteful expenditure on detailed plans before the process can begin at all. Some simplifica-

tion of the procedure is surely required.

There are other disadvantages in the present method of dealing with doubtful applications. The most important applications—that is, the ones that mean

most to the future of London—are often taken out of the planning authority's hands by the Minister of Housing and Local Government, who has the power, when he thinks fit, to call a project in and hold a public inquiry—at which, of course, the planning authority can put forward objections just like anyone else. It is right that there should be an appeal to the Government against the planning authority's decision, and that objections of all kinds should be heard at a public inquiry. It may sometimes be right for the Government to order an inquiry before the planning authority has even expressed its view. But often such public inquiries are confused by the introduction of issues that are outside territorial planning altogether and with which they are not qualified to deal.

The recent inquiry over a proposed hotel in Park Lane is a case in point. This project was called in by the Minister, in anticipation of LCC rejection, because, it is understood, he wanted to give full weight to the Board of Trade's predisposition in favour of any projects that would reduce the shortage of hotel accommodation in London. The LCC did object; so did the Royal Fine Art Commission; and at the inquiry many arguments were marshalled against the project, all arising from town-planning considerations. But nearly all the arguments put forward in favour of the project were commercial arguments, particularly the arguments of the promoters about the dollar-trade the hotel would entice to London.

But how is an inspector of the Ministry of Housing and Local Government, who conducts such inquiries and is a trained town-planning expert, to weigh the interests of good planning against dollar-earning capacity. These are planning inquiries and should concern themselves with planning questions. It may be necessary, on occasion (though it is a dangerous principle), for decisions taken on planning grounds to be overruled by a Government in need of dollars, but if so that should be done openly. The project should be turned down as a result of the planning inquiry, so that if the Government then chooses to allow it there is no doubt why this has been done.

The Park Lane Hotel case (on which, incidentally, the planning inquiry was held last November and the Minister's decision has only just, at the time of writing,* been announced) brings us to the difficult problem of how London's new high buildings should be designed, which I said was nearly as important as where they should go. For although some of the arguments against it were traffic arguments, others were based on its effect on the scale of Park Lane, on the skyline of the West End and on the view from Hyde Park, and even those who are willing to accept changes in scale and skyline as part of the changing face of London, rightly stress the need for the new high buildings to be well conceived pieces of architecture in their own right.

The more conspicuous they are to be, it goes without saying, the more important is the quality of their architecture, and it is unfortunate in the extreme that, with a few honourable exceptions, the new high buildings planned for London fall far below the best

of which our architects are capable. The average property developer is not in touch with the best architectural advice, the kind of architect he favours, understandably from his point of view, being the kind with most experience of extracting the greatest profitable floor area from a given plot-ratio and of circumventing most speedily the rules and regulations that stand in his way. Here again the complex planning procedure shows a defect: once approval has been given in principle, it is difficult for the planning authority to withdraw it when full details of the design are available and architectural faults become apparent.

All these difficulties notwithstanding, high commercial buildings—flats, offices and hotels—present a wonderful challenge to the modern architect, and the hard-headed business men must surely sooner or later give the more thoughtful, the more creative and the more highly trained aesthetically of the younger architects, chances of showing what they can do. They might even find that these are the architects whose ideas are the most advantageous financially. Certainly the modern idiom that exploits the intrinsic elegance of the fully expressed frame structure, lightly clad, suits this purpose admirably. The higher buildings rise, the more desirable are such qualities as lightness, transparency and delicacy of detailing.

Which brings us to one other point of difficulty. Many people have in their mind a vision of the skyscraper townscape of the future comprising glassy towers rising gracefully into the sky. But the most economical form of tall building, taking into account the useful floor-space that can be achieved in relation to lift and corridor space, is the oblong slab. The vision becomes less glamorous when all the towers are slabs, a slab being slender enough end-on, but when seen obliquely or from the side turns into a great cliff of building, blotting out the sky and overshadowing its neighbours. This only underlines the vital importance of careful siting, and of the planning authority doing everything possible to integrate such buildings into their surroundings. For example, they might take more initiative over proposals for the amalgamation of separately owned sites into larger units, which would encourage, through the operation of the plotratio, a good relationship between high and low blocks.

One final consideration must not be forgotten. We are facing up to the fact that in accepting high buildings we are accepting nothing less than a revolution in the visual character of London, which has always been a horizontal city. But are we also aware of another revolution that follows? There were vertical elements in the old horizontal London, but these deserved their place because of their symbolic significance. They were the spires of churches and the towers of imperial institutes and the like; they were among the dignified furnishings proper to a capital city. The new vertical elements, dominant in the skyline, will instead be anonymous commercial blocks with no civic significance. How are we going to reconcile the civic pride of a city confident in its ability to control its own future with the fact of its most conspicuous monuments being where they are simply because it was to some individual's profit to put them there?

[•] Mid-May. He rejected the proposal while not condemning the principle of building high on this site, and at the same time he approved a somewhat similar proposal for an hotel of thirty storeys just north of Hyde Park.

F. R. S. YORKE.

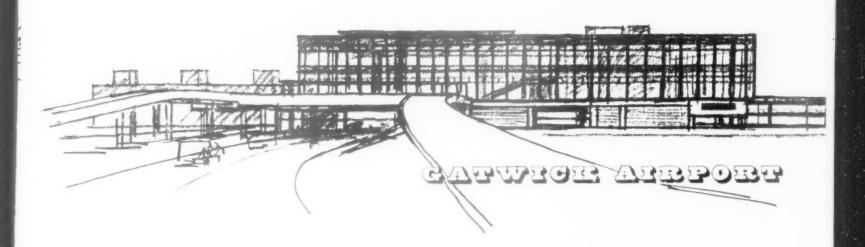
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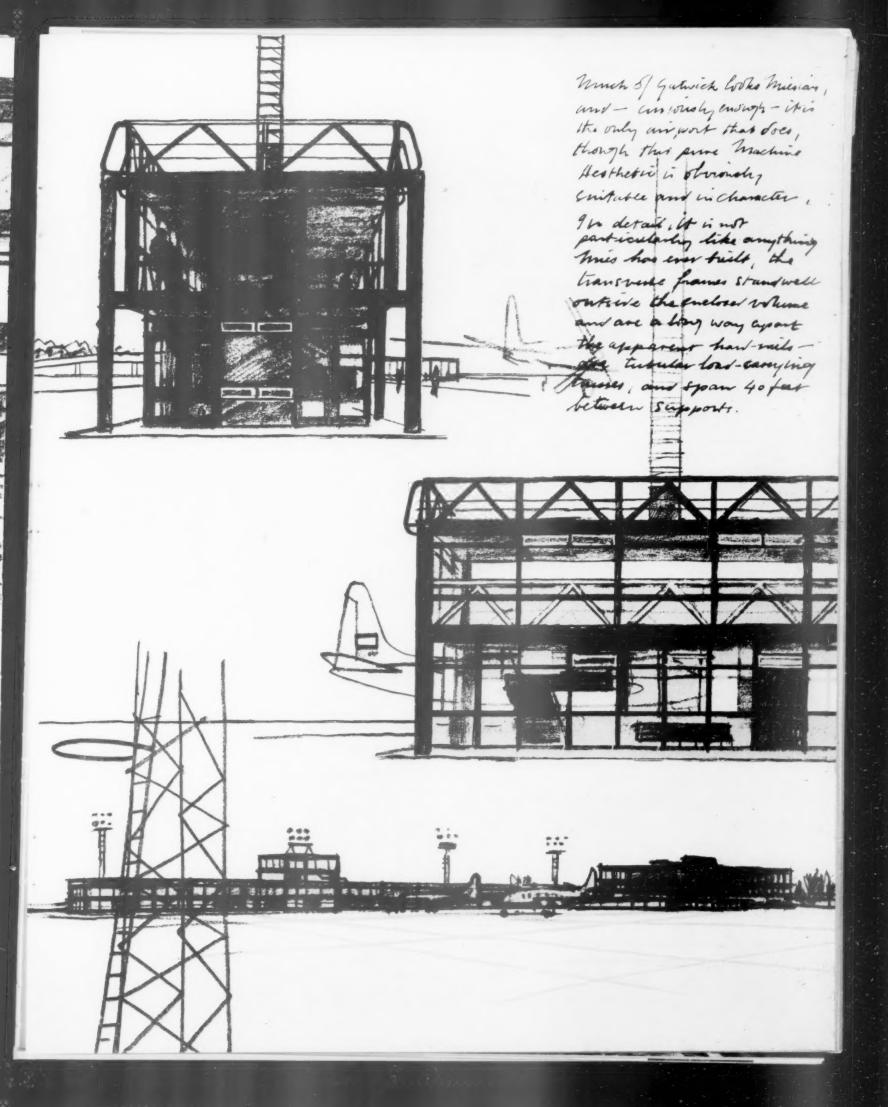
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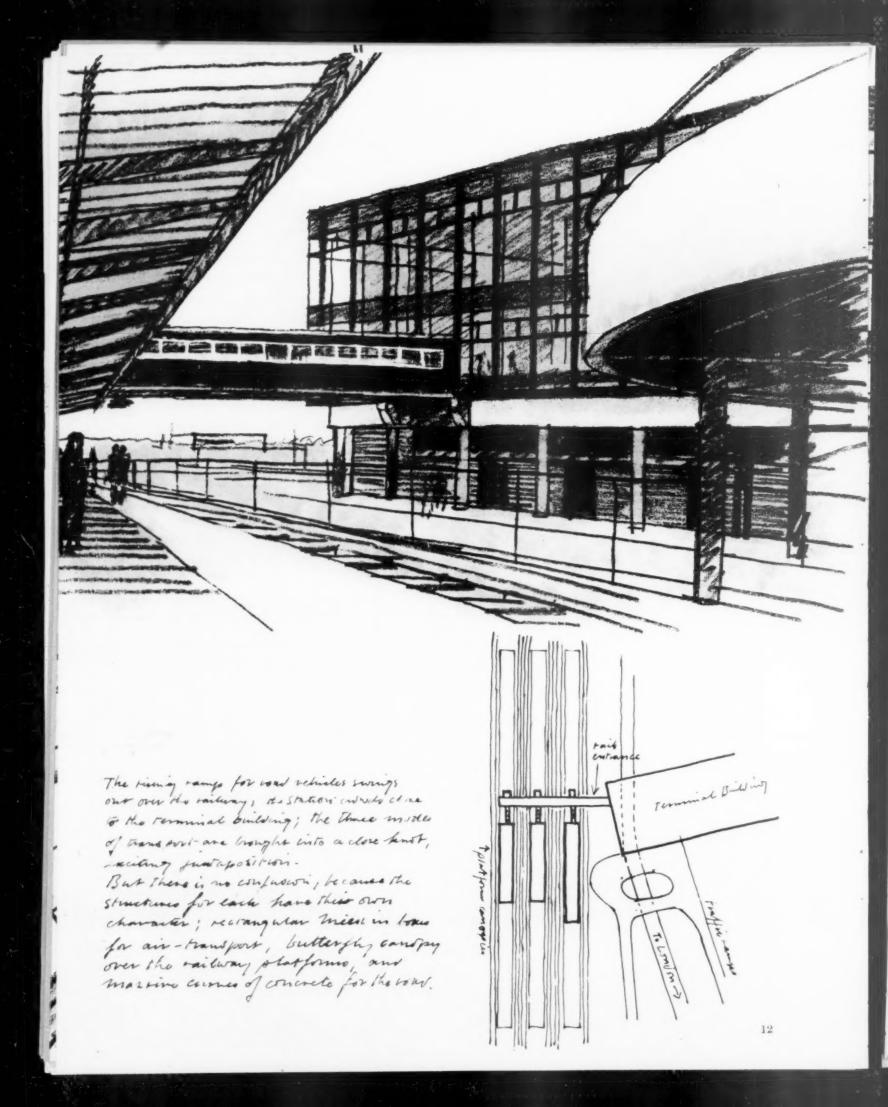
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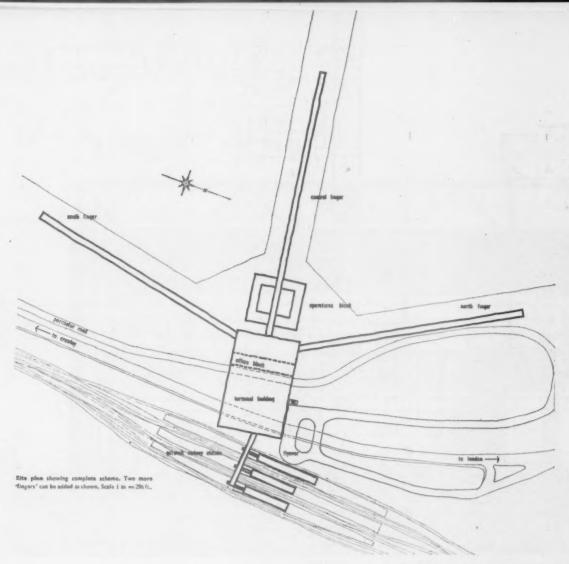
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arrent at lost; or and, air port at lost; or ad, air and air traffic to say, that the eye can onjoy; asing case of gloss and steel with full views of the drama of arrival and ofer true; paranger fringer innuming arrors the apoint who a jetty into space; tough, visitions like laiding; for air control, to thing who the beginning of a new Functional









GATWICK AIRPORT

The drawings on pages 9, 10, 11 and 12 are by Dennis Bailey.

Associate-in-charge: T. R. Evans Architect-in-charge: David Allford Site Architect: Leon Morton

Assistant Architects: Brian Henderson

(Terminal Building)
Beryl Hope (Control

Tower and Ancillaries)

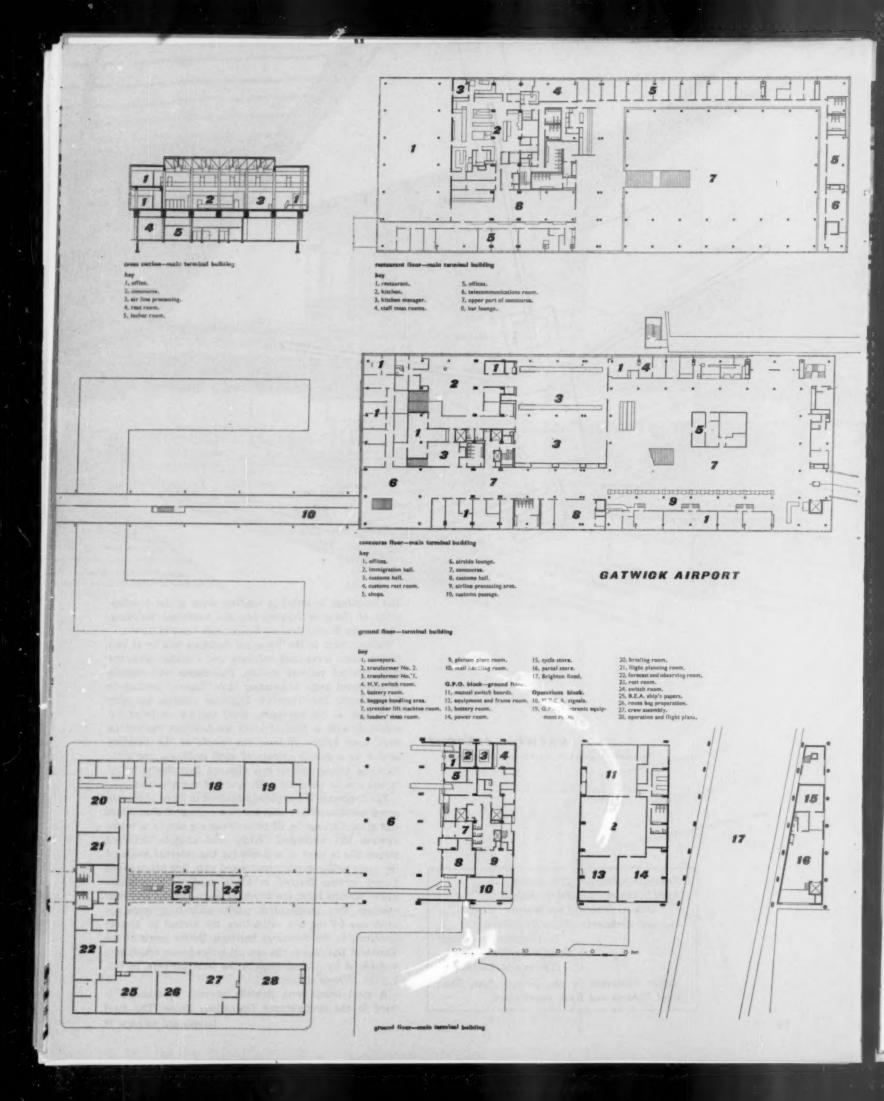
Other assistants in the group: John Ross, David Roberts and Basil Sherrington.

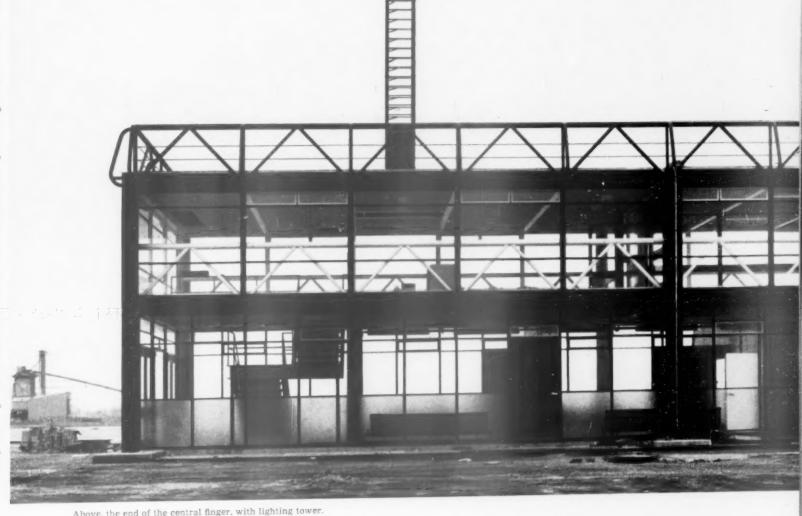
The buildings included in the first stage of the development of Gatwick Airport are the Terminal Building, Operations Block, Central Finger and Control Tower.

Public access to the Terminal Building will be at two points—high level road entrance and a bridge from the reconstructed railway station. Passengers will remain at one level until descending into 'fingers' leading to the aircraft. The Terminal Building consists basically of a floor at the concourse level carried on large r.c. columns, with a roof of steel construction carried on 80-ft. span lattice girders. The whole of the building is clad in a simple system of steel mullions and glass in wood frames which has ensured that flexibility of layout can be obtained with speed of construction.

The concourse is completely covered in large aggregate green terrazzo slabs: above it is a ceiling of aluminium and glass. Ceilings in all other areas are simply asbestos squares left untreated. White and slightly textured glazed tile is used as a finish for the internal walls of the main public spaces; contrasted with this are areas of glazed screens framed in black anodized aluminium. These screens form the fronts of shops, offices and concessions. Two independent public address systems are used, one by the fire authorities, the second by airport operators in the Terminal Building. To the south of the Terminal Building is the central boiler-house which provides heat for all buildings in the terminal area, including the railway station.

A steel frame with flexible internal partitioning is used in the single-storey Operations Block. The steel [continued on page 17]

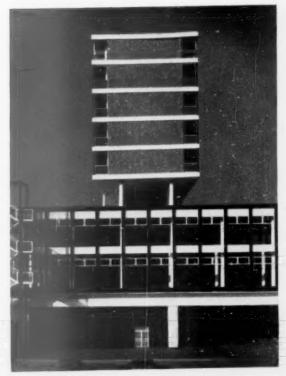




Above, the end of the central finger, with lighting tower. The highest level is an open viewing deck, without access to the apron below: the upper glazed floor contains the customs and custom-free passage-ways from the main terminal building, with access by stairs, such as those that can be seen in this view, to the customs offices, etc., below, and thence to the apron and the aircraft. The structure is of steel, painted black where it is exposed to the weather, the main transverse portal-frames having been welded-up on site and lifted into position, followed by the tubular trusses that span from frame to frame, and subsidiary members were welded-up in situ.

GATWICK AIRPORT

Right, a view of the architects' model, showing the end of the office blockintended to be built over the terminal building, which will ultimately be approximately twice as wide as the completed first phase.

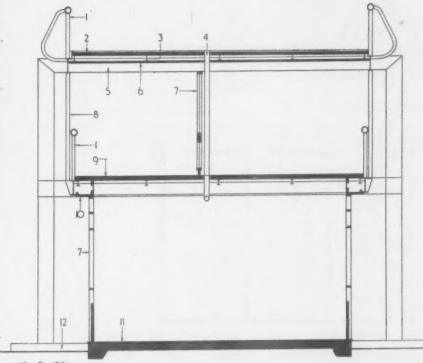




Right, looking towards London along the main Brighton road where it passes under the ramps that bring road traffic up to level of the main concourse of the terminal building. The large hole in the ramp is in effect, a traffic round-about to allow for one-way circulation outside the entrance-doors. Below, another view of the model showing the relation of the ramps to the terminal building. The proposed office block is also seen, and the intended ultimate size and shape of the terminal itself.

GATWICK AIRPORT



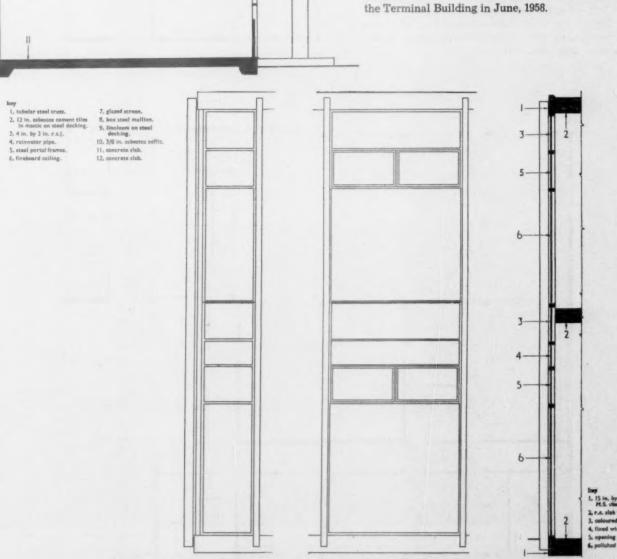


continued from page 13]

work is in the form of a large U on plan and is framed in boxed channels for the stanchions and welded lattice trusses of 36 ft. span.

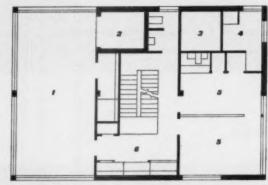
The Central Finger which provides a glass wall covered walk-way from the Terminal Building is of welded steel construction and is conceived as a series of bridges spanning 40 ft. between the welded steel portals. This gives flexibility of operation at ground level and alterations can be made in the type and extent of accommodation as the airport develops. The bridge trusses are so designed to combine the function of handrailing and structural members. Two-thirds of the way along the finger from the Terminal Building is the Terminal Controller's room.

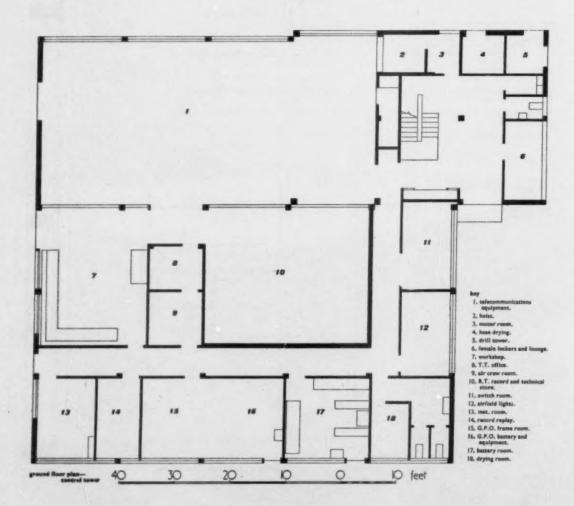
Progress of work on the development of Gatwick Airport can be indicated by the following four stages. The client's briefing took place in October, 1955, and work commenced on the site in November, 1956. The Control Tower was completed in November, 1957, and the Terminal Building in June, 1958.



The Control Tower has a fair-faced r.c. frame showing texture of the sawn-board shutters. Steel work in the tower portion consists of an octagonal frame 10 ft. high of special sections all prefabricated to fine limits; subsequently the whole was welded together.

The window consists of one skin of antisun glass outside, a 4-in. space and hermetically sealed double glazing inside. Local stock bricks and varnished red hardwood window frames heighten the effect of the neutral coloured concrete. To allow for the extensive service installation required, vertical and horizontal ducts have been incorporated. The central tower portion houses the radar and control rooms, and some administrative offices. Each room is served with horizontal ducts.



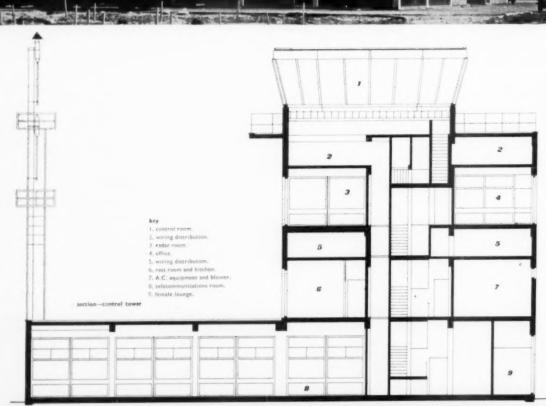




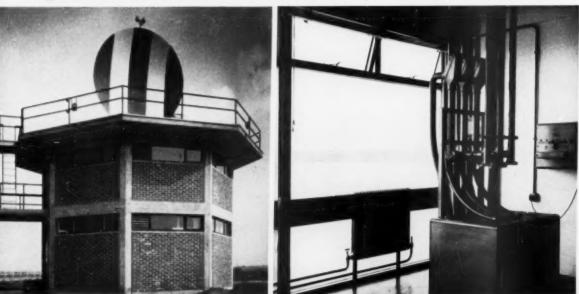
GATWICK AIRPORT

The control tower at Gatwick Airport, seen from the east—the building faces toward the taxiway and runway, which are off to the left of this view. Unlike the terminal buildings, but like all the other structures concerned with the handling of aircraft in motion, it is of reinforced concrete frame construction, left rough-shuttered, with infill of brick or glazing.

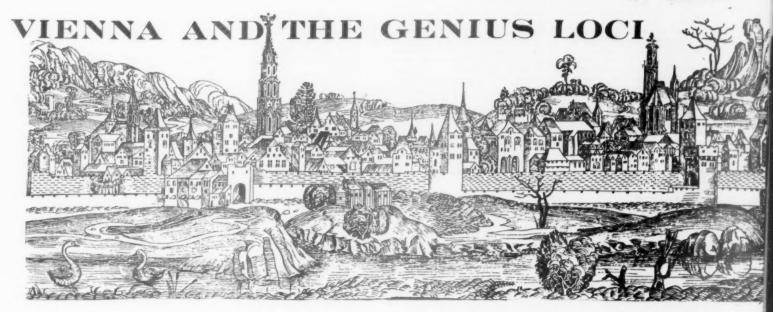
The control tower seen from the taxiway. The framing of the glazed octagonal control room is in steel, carrying two skins of heatabsorbent glass. Most of the accommodation in the single storey part of the block is occupied by telecommunications equipment and the airport fire-brigade. The fire-station proper is in the low block behind.



T



Left, one of the radar installations; the structure, as will be seen, is related to that of the control tower.
Right, message-handling equipment in the air traffic control room. As in all buildings of this kind, ducting for power and communications of this sort occupies a considerable percentage of the built volume, and appears in general views of the control tower, above and previous page, in the form of mezzanines between the main floors.



Vienna's town planning development was unique amongst the capitals of Europe. Although extensive suburbs had grown round the medieval city, they had been only lightly fortified and the principal defences were until the nineteenth century still those round the old medieval town, which, with its Gothic spires, looked as it did in sixteenth or seventeenth century prints by Hogenberg, or Suttinger or the anonymous print above. This shows the city from the suburbs with the Glacis as an entity and roofs and spires appearing above the walls as a rugged skyline.

The nineteenth century was the Dark Age of town planning. The old concepts had gone by the board, the soul and body of towns had dis-integrated. By the middle of the mineteenth century, the spiritual meaning and the sanctity of the town as a town had gone. Moreover, its inner coherence was dissolving at the same moment at which it lost its cuttured above by the disputational contents. outward shape by the dismantlement of the fortifications. No metropolis illustrates this state of affairs more illustrates this state of affairs more completely than Vienna. It is a hundred years this year that the competition was announced for the creation of the Ringstrasse. What happened, once the Emperor had given orders for the competition, is nineteenth century to the bone, paper-planning, if the word 'planning' can be used at all. How Vienna can be used at all. How Vienna escaped from the worst consequences and how the *genius loci* asserted itself and came to the rescue of the town shall be related here.

Vienna's position in the history of town planning is unique: in cities like Rome or Paris, Vienna's fellow cities in size and importance, the Baroque pattern had superseded the medieval one and by necessity destroyed much of it. The reason had not been functional necessity in the nineteenth century sense but a desire to glamourize the town and to enhance its beauty by vistas and by avenues connecting outstanding buildings. In Vienna, although by the seventeenth century the town had long

outgrown its medieval defences, the suburbs had not, like in other towns, been incorporated into a new defensive system. Only a light defensive ring was built round them and only old city remained heavily forti fied. In order to derive the full benefit from this inner wall, no building had been permitted on the wide circle of fields immediately outside the 'inner' city and the suburbs had been kept at a distance. A twofold advantage had resulted from this arrangement. The space between the old city and the suburbs was left free for improvements and the medieval town remained largely undisturbed. It is true that during the Baroque the old town was given many Baroque palaces and several new squares, but the most important things happened outside. That was largely due to Fischer von Erlach. After Vienna had for the second time and decisively so, chased the Turks from her walls, the nobility began to build their summer residences outside the walls, some at a distance like that of the Liechtensteins, others nearer to the old city, in fact facing the walls just on the other side of the Glacis, like those of the Trautsons, Auerbachs Auerbachs and Schwarzenbergs whose palaces look towards the imperial palace, as if they were paying homage. Prince Eugen's palace, the homage. Frince Eugen's palace, the Belvedere, though again a little farther away was so placed that it could be seen from the Glacis. When Fischer built the Karlskirche he again placed the church so that its facade was turned to the imperial

palace. There was thus a very strong and obvious relationship of the old city to the magnificent Baroque buildings which surrounded it like a sparkling ring.

The architects of the nineteenth century though paying lip service to their great predecessors of the Baroque had nevertheless no inkling of their intentions and achievements. The creators of the Ringstrasse to all intents and purposes destroyed the eighteenth century scheme. In the first half of the century avenues were planted on the Glacis, and many coffee houses and eating and detricting places with gardens were drinking places with gardens were installed. Concurrently talks of the necessity of an enlargement of the old city went on. Nevertheless it seems to have surprised everybody when, on the December 1, 1857, the Emperor announced his intention to do away with the fortifications and create the Ring in its stead and on the Glacis. The existence of the Glacis, unoccupied by any permanent buildings, created a unique situation for the planners, when it was decided to demolish the walls. In Paris some of the boulevards also followed the line of former fortificarollowed the line of former fortifications, but the space upon which they could be built was far more restricted. In Vienna the available space, about a quarter of a mile wide, was intended to be used to enhance the beauty of the town and make it truly imperial. From the Emperor issued forth very detailed instructions as regards the method both of execution and of planning:

'It is my desire that the enlarge-ment of the Old City of Vienna shall be carried into execution as soon as possible, taking into consideration its links with the suburbs and keeping in mind the improvement and enhancement of this town of my residence and the capital of my empire.'

The points laid down by the Emperor were: along the Danube was to be a wide embankment, to the west of the old city a large space for parades and army exercises. Be-tween the embankment and the Votivkirche which was already build-ing fortified barracks should be erected and correspondingly at the eastern end of the embankment the existing barracks be left standing. The space in front of the Imperial should remain an open with the two parks on either side left as they were. The principal develop-ment should take place to the south of ment should take place to the south of the old city. The plan had to allow for public buildings, namely the two army headquarters, one for the empire and one for the town, a new-opera house, a new public record office, a library, the town hall, mus-eums and galleries.

This mixture of 'culture' and

This mixture of 'culture' and military exigency appeared again in the composition of the committee which was to judge the plans of the competitors: this included representa-tives of the Ministries of Interior and of Trade, the Army and the Police, then the Mayor of Vienna and experts selected by the represented authori-

Events

A competition was announced on A competition was announced on January 30, 1858, and plans had to be submitted by July 31. Three plans of the eighty-five submitted were premiated: Förster's, Van der Nüll and Siceardsburg's and Stache's. Then the Ministry of the Interior was charged to work out a new plan. This was largely based on Förster's, This was largely based on Forster's, though his claim made in his own paper, the Allgemeine Bauzeitung, that his plan was the one that was adopted cannot stand. The official plan, devised by Löhr, it seems, received the Emperor's sanction on Sentember 1st 1852. September 1st, 1859.

As for the financing of the scheme, some of the ground available was to

some of the ground available was to be built up with housing, mainly as blocks of large upper middle clas-flats, and the land so sold was to pay for the public buildings.

The task of the planners was unenviable, and it is questionable whether architects of another age would have found a more inspired solution. For Förster's plan it must be said that he tried to keep the spirit said that he tried to keep the spirit of the Glacis and continue its tradition of a place of popular entertainment as much as he could, providing an open-air reservoir and places of amusement for the inhabitants of the overcrowded old city. Much of the available space was given up to gardens with coffee-houses. It seems that the authorities thought that too much of a good thing. On the plan which emerged from the Ministry the Stadtpark, a picturesque landscape garden, was all there was to be in the way of gardens apart from the already existing Velkswarten to one side of existing Volksgarten to one side of the imperial palace (the Hofgarten which corresponds to it was until 1918 reserved for the court).

One consideration of great importance was the security of the Emperor and the town, and thus on either side of the old town near the river, barracks of considerable size and strength had to be built so that troops could be rushed along the Ring at great speed. This was curiously enough the only demand of the Emperor's original edict to be carried out in full compliance with his words. To begin with, a large space was to be reserved for army manœuvres and parades but some manactives and parades but some-what later this decision was reversed and the space also given over to public buildings. They are the Houses of Parliament, the Town Hall and the University, but it took a little while before they were finally accommodated and the process by which that was achieved is more like Musical Chairs than like rational planning.

The Moral

It has been said above that the planners of the Ring were com-pletely impervious to the intentions of the Baroque Age, that in fact they destroyed the spatial relationships established then. Yet it would be wrong to deny them all aesthetic sense and intentions. Förster's explanation accompanying his plan proves that they had both. The most easily discernible piece of grouping is the imperial palace with two new buildings on either side of a big central square, then the two museums central square, then the two nuscums and finally the imperial stables. There was also some attempt made to link up the Town Hall with the Court Theatre. But this is all: only these two groups go across the Ring, there is nothing to link all the other single buildings along the Ring into a coherent whole. They stand singly, without taking notice of each other, and occasionally even at odd angles. Yet, and there lies the planning redemption, there is cer-tainly a picturesqueness about the whole of the Ring which mellows the harshness of the arrangement of the buildings. However, whether this is a result of premeditation or simply of

result of premeditation of simply of chance, we don't know.

The Stadtpark was consciously landscaped after designs by the painter Josef Selleny and a land-scaped square was made in front of the Town Hall. These, together with the old Vellegester, together of the Town Hall. These, together with the old Volksgarten, the Burggarten and a few other green patches result in a very attractive green strip on the western part of the Ring between the Opera and the Volvskirche. In fact now that all the trees on the Ring itself are fully grown as well, one does get from a number of viewpoints the impression of a park with his buildings in it. of a park with big buildings in it.

1, the Glacis was criss-crossed by avenues and many coffee houses provided shelter and amusement for Vienna's population who there took the air under the Emperor's eyes.

he, from his castle, could also behold the Karlskirche and the palaces of his nobles spread out along the Glacis-next to the church is the Belvedere and the Schwarzenberg Palace. All this was radically altered when this zone was built up. 3, a bird's-eye view from the south towards the Opera, about 1870, shows this part of the Ring fully built with its characteristic upper middle-class housing, the Stadtpark to the right and still much open space with the Paradeplatz to the left.

4, a few years earlier most buildings though not actually completed were already planned and appear on another bird's-eye view with Hansen's Heinrichshof in the foreground, and behind it the Opera, to the left blocks of flats and on the extreme left the Renaissance-style Museums, then the neo-Greek Parliament building and the Gothic Town Hall all standing round the still unbuilt open ground in front of the Imperial Castle, with Nobile's Burgtor the sole rema town gate, in its centre

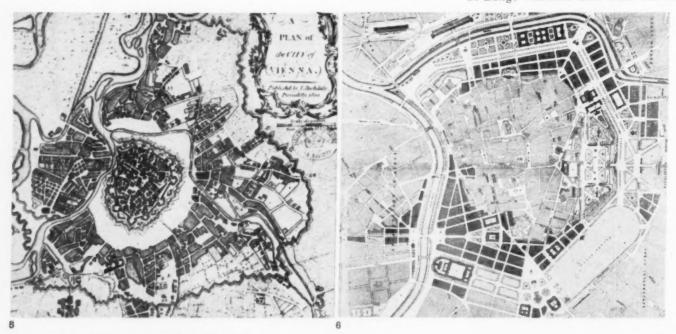












5, on a map of 1800 the Old City, encompassed within its fortification, appears like an island set in the sprawling subusts from which it is separated by a wide girdle of unbuilt land. This zone and the space gained by pulling down the fortifications was to be built up by Imperial decree with private and public buildings connected by a Ringstrasse. On January 30, 1858, a competition was announced and on July 31, 1858, the results were declared.

6, L. Förster in one of the three premiated plane, attempted to retain the character of the Glacis as a place of public entertainment as much as possible by creating many open spaces supplied with coffee houses. The public buildings are curiously tucked away, the Town Hall and the University to one side of the already existing Votivkirche and the Theological Seminary on the other. The buildings serving the Arts are all together on the east; only the Opera was finally built where Förster had suggested. Much ground was given for military purposes and to covered markets, and the remainder of the available space to outsize blocks of outsize flats. The Ministry of the Interior devised another plan in which the open spaces had been substantially reduced, in fact only the Stadtpark-laid out in the picturesque tradition—survived. The Town II all was transported to the east side of the town roughly on the spot where the Academy of Music ought to have been which, in its turn, was moved to the west of the Schwarzenbergplatz, together with the exhibition buildings. The Museums appear tentatively on a plan of 1863 where they were actually built. The Parliament building was to stand in front of the Votiokirche, to its left, but the University was homeless for a time and so was the Court Theatre. In 1871 the University, the Town Hall and the Houses of Parliament were definitely planned to be on the site of the Paradeplatz though in a different order and only in 1872 did all buildings finally find their respective niches. 7, is the Ring as finally built; the dotted area are parks and open spaces, the shaded area buildings, the larger irregular ones public buildings. 8, the whole western part was built up very loosely and large picturesqu

planted open spaces remained like the square in front of the Town Hall.



But that effect d la Corbusier was without any doubt not in the minds of the creators of the Ring.

The most striking view is from the Burgplatz across the Volksgarten towards the hills of the Wienerwald; this view is wholly due to the chance that the projected second part of the

new Imperial Palace was never built.

If one walks along the Ring a feeling of surprise emerges again and again, as building after building again, as building after building appears, seen mostly at an angle, often partly hidden by trees or another building. Such an arrangement can be called romantic or picturesque and is somewhat reminiscent of the experience one has in walking through a medieval town in which picture after picture unfolds itself. Thus perhans one may unfolds itself. Thus perhaps one may be permitted to think that a merciful genius loci watched over the proceedings—a genius incidentally with a practical as well as an aesthetic sense. For the Ring, in addition to whatever it is architecturally, is also a by-pass or ring-road in the modern

sense, taking all the public transport, as the Lastenstrasse, the outer ring-road, takes all the heavy traffic. The old city was thus saved from the worst consequences of modern traffic and the necessity of ever widening its streets. Of course much damage had been done to the old town prethe last war, but even now part of the old town has kept the enchant-ment of a medieval city.

The source material was published in Förster's Allgemeine Bauzeitung of 1858 and 1859. Some Information of the sequence of events is contained in K. E. Schimmer, Alt und New Wien, 2nd edition, by M. Bermann, Vol. II, Vienna 1904.

There is a general article on Vienna by Prof. P. Abercromble in the Town Planning Review, Vol. I. 1910/11.

P. Abercrombie in the rown.

Vol. I, 1910/11.

The plans of the competitors are kept in the
Verwaltungs Archiv, Vienna I, Wallner
verse 6.

Verwaitungs Archiv, Vienna I, Waliner-strasse 6.

According to information kindly supplied by Prof. E. Seckler no elevations exist now; there is every reason to believe that none was ever made and that only plans had been submitted.



ARCHITECTS OF THE RING

Förster, C. F. L. von, 1797 Bayreuth-1863 Gleichenberg, studied at Munich Academy; since 1819 in Vienna, worked with Nobile. His most important work the plan for Vienna. Built churches and synagogues, with Hansen the Arsenal in Vienna. Edited the Allgemeine Bauzeitung. Hansen, Theophilus von, 1813 Copenhagen—1891 Vienna; works with Forster on Arsenal, created a new type of monumental block of flats. Built: Academy in Vienna (1861): Parliament in Greek style (1873-83); Stock Exchange (1814-77) and a number of Palaces, along the Ring-

Sicard, Siccardsburg von, August, Budapest 1813—Vienna 1868. Worked with Van der Null all his life, looking after the technical and business side

of the partnership.
Null, Edward Van der, Vienna 1812-1868. Their most important work the Vienna Opera, the most independent work stylistically and the first public building (1861-69).

Hasenauer, Karl von, Vienna 1833-1894. Pupil of Van der Null and von Siccardsburg. Built the two museums (1871-81) with Semper and the new Court Theatre (1880-88). In 1881 began the new Imperial Castle only finished, as far as it was finished in the twentieth century.

Löhr, Moritz, born Berlin, 1833-35 in Rome, since 1835 in Vienna, designed Western Railway Station and participates in the 'Ring' competition.

Heinrich Ferstel, von, 1828-1883. Built gothic pre-Ring-strasse Votivkirche, the Austrian Museum of Arts and Industry (1868-71) and the University (1873-84) in High Renaissance.

Schmidt Friedrich von, Frickenhofen 1825—Vienna 1891, worked as mason at Cologne cathedral and built Gothic' all his life, a number of churches in Vienna and the Town Hall. He acted also as master mason and architect to Vienna cathedral.

SEPLIPE FOR SWIMMERS

BEACH RESORT AT GLYFADA, GREECE

architects E. Vourekas, P. Sakelarios and P. Vassiliades

1, cubicles seen from one of the shaded patios.



This beach resort, which is only half an hour by bus from the centre of Athens, was created by the 'Aster' Insurance Company, and is the first attempt to provide modern facilities for bathers on the Greek coast. It covers 72 acres and provides bathing huts, private cabins, a snack bar and a restaurant.

The accommodation is divided into three main groups. private cabins, small cubicles, and restaurant and administration. The cabins are served by a kitchen, with resident waiters and maids so that they form an informal hotel. They are built of Swedish timber, with one wall of concrete faced with marble. The roof is aluminium, lined



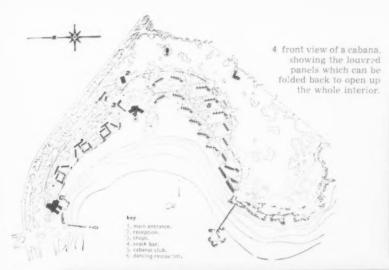
with insulating tiles. There are three blocks of cubicles built round a central patio which faces the sea and which is partly shaded by a roof of woven reeds. These cubicles are also of timber, roofed with specially pressed hardwood vaults covered with tar paper. To withstand the strong winds the end walls are concrete faced with uneven pieces of marble.

The snack bar in the centre of the site has a floor formed of sea pebbles set in concrete to form a mosaic and to allow air to circulate beneath the bathers' feet. The restaurant is at the corner of the bay nearest Athens and can be used during the winter and for dancing. It has a covered terrace, floor of red clay tiles and the ceiling has oak beams with woven straw panels.

porch of a cabana, showing the wooden brise-soleil and dry stone wall.

3, detail of the cubicles, with the vaulted roofs which project to form a covered way.









5, the marble slab wall at the end of the row of cubicles acts as a wind break.

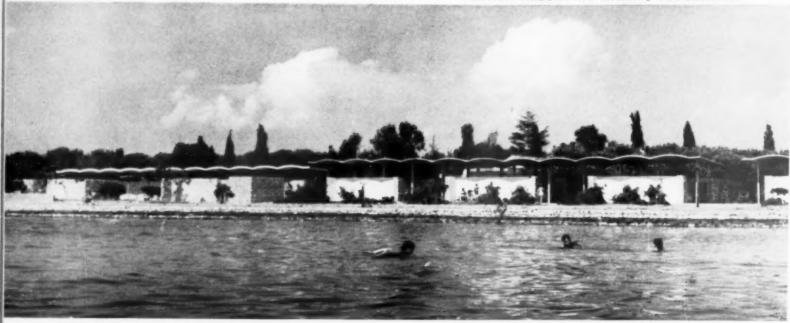
BEACH RESORT AT ZADAR, YUGOSLAVIA architect: Zvonimir Pozgay

This bathing resort at Zadar, on the Dalmatian coast, has been inspired by the traditional dry stone walls of the peasant farms. The construction of the cabins is modern, but they have been planned to form an integral part of the landscape, and the tamarisks, figs and olives are used as a part of the design. The cabins consist of a stone wall with an independent parasol roof carried above the wall on slim concrete columns, so that air can



6. detail showing dry stone wall with free standing co'umns and roof vault



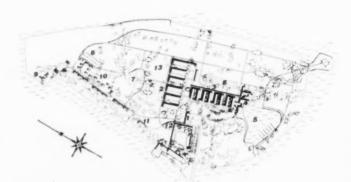


circulate freely. This also gives views of the trees through the buildings as well as from inside them.

The site is sheltered from the north wind-the 'bourrah'-by a high stone wall, and the cabins are grouped round a sandy bay. There is a small restaurant, a playground for children and the administration block includes a hairdressing shop.

7. cabins seen from the bay,

architects: Max Fellerer and Eugene Worle



8, clock tower.



RIVERSIDE RESORT NEAR VIENNA



The original Gansehaufel, dating from 1907, was the first inland open-air pool with a beach. It is situated on an island in the so-called Old Danube, an inlet

of the main river, with very rich vegetation. The original buildings were totally destroyed in 1945.

Cubicles and lockers are arranged in two-storey blocks connected by steps and raised terraces, with screened courtyards between. Some cubicles are in three-storey towers and there are also the single-storey private cabins. Altogether there are changing facilities for nearly 30,000 people. In the construction the minimum amount of timber was used, and the structural parts, walls and screens are all of reinforced concrete.





RIVERSIDE RESORT NEAR VIENNA



nario

BROWNS

BOAT

The varieties of architectural lettering, all proper to their material, technique and situation, illustrated opposite are: 1, an engraved brass 1 | 2 doorplate from Brighton; 2, one of Le

ted shop fascia from the Tottenham Court Road, London; and, 4, a carved wooden sign from a boathouse in Worcester.

3 | 4 Corbusier's hand-written windows from the chapel at Ronchamp; 3, an illuminaLETTERING

Nicolete Gray

MATERIAL AND DESIGN

Until the invention of printing, the dominating factors in letter-design were the tool employed and the surface on which it worked. The trail of brush on papyrus, the slant of the quill on vellum, the bite of stylus or chisel in wax or stone, these circumscribed the forms and indicated the directions of experiment. Lead type and paper extended the range, but the manual skill of the punch cutter was limited by the slowly-improving quality of type-metal, and cultural snobbery, however high-minded its motivation, retained the forms of humanistic miniscule, Trajanic capitals, Fraktur and chancery script in the alien materials of print.

But the Industrial Revolution, with its new materials and its new uses for lettering, began to force the pace and, what is more important still, began to remove the design of alphabets from the trained hands of the craftsman and transfer it to the drawing board and the layout pad. The direct encounter between tool-using man and his obligatory materials ceased to be the determinant and was replaced by considerations of use, location and choice of materials available.

Inevitably, both the methods and the objectives of type-design were altered—It would be unlikely indeed if the principles best suited to neon sky-signs should be applicable also to instruction manuals and transparent food-packages. But this is not to suggest that particular uses or particular materials limit design to one set of letter-forms, rather that use and material should form the inspiration for experiment and the removal of old limitations.

The history of lettering is largely a matter of the evolution of norms, and their crystallization in acceptable standards of aesthetic satisfaction and legibility. These

standards facilitate production, give a sense of over-riding order, reduce the labour of reading—and form the background against which creative innovation and eccentric aberration stand out in their full value. At the present time, new uses, new materials, must find their place on what is still, in many ways, a new architecture. We are still in the process of evolving our new norms for architectural lettering, our standards in this field are far from crystallization. But many of the characteristics of the new uses and the new materials are sufficiently clear for an attempt to be made to outline the directions that evolution should take, and such an attempt is made in the article which follows.

During the first phases of the industrial revolution new techniques did stimulate new forms of design. In this series we have reproduced many examples of early nineteenth-century letters of stucco or possibly Coade stone, and applied letters of wood and cast iron. 1 is a later type of standard metal letter, imitating neither wrought iron nor stone but introducing curves and curls on the profile and on the letterface which are very effective in conjunction with ornamental ironwork and against a plain background, sky or stone. 2-8 are examples of lettering in brass, ceramic, glass and wood; not all examples of new techniques but all of thinking in terms of the material, material examples of effects which the type-design of the period was imitating. 4 and 8 are really rotund. 5 and 6 incorporate the way in which glass is cut and its shine into the design. 5 has the same section as a chisel-cut letter, but the shining transparent material clearly adapts itself to an exuberant Tuscan rather than to a severe Roman.

7 exploits possibilities of the superimposition of layers, 2 and 3 are concerned with the surface of the letter and the pattern these make against a background of a defined shape and size—a particularly relevant problem today.

Today we have new materials and new ways of dealing with the old ones. In particular we have the illuminated letter, which is very exciting and so important that almost every type of modern letter has to allow for, at the least, a relation to artificial light. Mr. John Sharp, in his article in the REVIEW, October, 1957, has classified these from the technical point of view. From the point of view of design I propose to consider examples which are interesting and suggestive, though not all good; I am grouping them in three groups according to the problems of design involved. First where the material is linear, secondly where it is the surface-face of the letter which is important, thirdly where the unit is not the inscription but inscription-in-itsbackground.

This grouping omits the basic normal

architectural letter, the three-dimensional letter in whatever material. That was dealt with in my article of October, 1957.

To return to the linear letter, neon or metal, we are immediately faced by the fact that it is a type for which no norm exists, for it is not the same as the copper-plate hand which is based on a tool, the flexible pen, and is contrasted thick and thin not monoline; the problem is linked with the urgent one of finding some sort of principles for ball-pen writing. One needs to go back to reed-pen-written pieces, such as 9, an official hand of the sixth century, for a real style, to a casual experiment such as 10, or to artist's informal writing, 11; possibly the Marion Richardson pattern from which 12 derives might make a starting point, but it lacks vitality as compared with the French example, 13; though this, to English eyes at least, lacks legibility. We need to find a norm which is legible and which also uses the full beauty of curves and twists and the flowing nature of line. In the whole field of architectural lettering this is the technique which offers the creative artist his simplest opportunity, since each sign is an individual cypher. I should imagine that this is the most likely way in which a good norm will be found. The French must derive from the calligraphy of contemporary artists, which has a definite style, not from any lettering tradition, in which we are far richer than they.

Neon lettering is not, of course, limited to cursive. Single line capitals look far too thin unless they are embedded in a three-dimensional letter; then they embellish a neat letter, such as a compressed sans, effectively, 14. Multiple line, however, offers far more scope. Alitalia, 15, is a simple and successful example of a sans capital. Tiarks, 16, is less successful, but all the same interesting as an experiment towards finding a new sort of bold letter. Some sort of outline seems in the present state of experiment to be the main alternative to cursive. I notice that of these the more complicated forms are definitely the more effective, and round

forms are better than square. An Egyptian seems to need the S for instance in Festival Hall; best of all the traditional forms, perhaps, is the Tuscan, 17. It is of its nature gay and dancing, which is surely what is wanted.

The letter which is an illuminated surface instead of a line raises quite different problems, 18-22 are examples of various approaches. Brown's, 18, has used the idea of a decorated surface (it recalls 3 and all the Victorian decorated type faces). It is a simple idea which is the obvious corollary to the decorated backgrounds which one sees more often and one which might be developed. I am more concerned, however, with the much more difficult problem of the letter shapes of plain surfaces, problems which have become much more important with the introduction of the perspex-faced letter, coloured by day and illuminated by night, which is creating a new and conspicuous surface-texture in our streets, pale and opaque, 19. I notice that the examples which please me out of all these 'surface' letters are usually lower-case, or bastard forms of Egyptian or sans, and a high proportion are arranged vertically. In fact they are a definite break with traditional design. The two points to notice are the rejection of thinking of letters as made up of lines and the substitution of thinking of them as surfacepatterns, as in Strads, 20. The second rejection is that of the serif, which is no longer used as a regulation termination, but added, as in Union Castle, 19, or Pye, 21, in certain places only. Other examples of new types of letter mix upper and lower case (or use lower-case without ascenders and descenders) or like Kleijkamp, 22, cross sanserif and fat face. The interesting thing is that unlike most of the free and bastard lettering hitherto, this lettering has style. New materials and uses are beginning to beget new norms.

Finally the material letter is not in vacuo, it has to be attached to some other material, or to be incorporated into some unit. In this some of the new letters







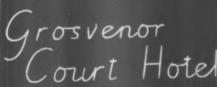
















OF SPAIN

ALITALIA JACKS

1		2	3	
4		5		7
8		9		10
11	12	14		T
13		15	16	

- 1, metal letters-Dublin.
- 2, brass—Brighton.
 3, brass—Brighton.
- 4, ceramio-Sherbourne.
- 5, incised on glass-New Cross.
- 6, glass-Paris.
- 7, wood-Worcester.
- 8, wood gilt.
- 9, Roman currive writing.
- 10, rope writing-Tipperary.
- 11, paint on glass-Roncham 12, neon curreve-Oxford.
- 13, neon-Nice.
- 14, single line embedded no New Bond Street.
- 15, neon triple line—New Bond Street.
- double line neon—Munich.
 neon Tuscan Shaftesbury Avenue.



again present new problems. Not only do some have to be seen against the night, or against the background of shadows, but by day they are also physically detached from their background, perhaps because of concealed lighting behind the letter, or other technical reasons, perhaps because they are set against the sky line; as one sees a great deal in Holland and Germany, 23. They may even make a street pattern of their own, as in Piccadilly Circus, or in via dei Giubbonari, Rome, 24, where the horizontal patterns are fascinating, though it must be admitted that they look best from the end at which the majority are in reverse. All this means that one of the most important problems of modern architectural letter design is that of knitting the letters together into a unity. And here it is again important that this field should be distinguished from that of contemporary typography. In some ways both are working along the same lines, particularly in a preoccupation with script and sanserif faces, but the typographical problem in my interpretation is one of reducing letters to pictorial values, and consequently to a diffusion of letter pattern. Cursive script is obviously knit together (though difficult to relate to the architectural background), but sanserif is not, the serif indeed is the normal link in lettering. Sans is clearly justified where, as in 23, it repeats the fenestration pattern, otherwise only the neatest letter holds together; the device of using italic is to my eye insufficient. What we want is a stabilization of the experiments noted in the previous paragraph. Finally, therefore, I reproduce some examples, old and new, where a significant degree of unity has been achieved in the letter-combination and the relation of this to its immediate background. 25 is a piece of stone cutting of the eighth century where the forms are used to tie the design together. 26 shows the possibilities of mixing types of letter, though its success lies above all in the setting in the oval and that of the oval in the curved, blank wall. In 27 it is an example of clever interaction between the shape and nature of the material and the type of letter chosen. Perhaps the most successful example is 28, which demonstrates the flexibility in use of a formal lower-case letter.

THE EXPLORING EYE

If your mind's eye sees the world parcelled out visually between styles prescribed by geographical location, you need a sight of Kashmir. There, in the heart of the Asian land-mass, Hirdu, Mogul and Anglo-Saxon influences have invaded the landscape of a high cool water-logged plain, with a peasant culture that had already wrought land and water into a superficially European pattern. Result: contrasts that look at first like flat contradictions.

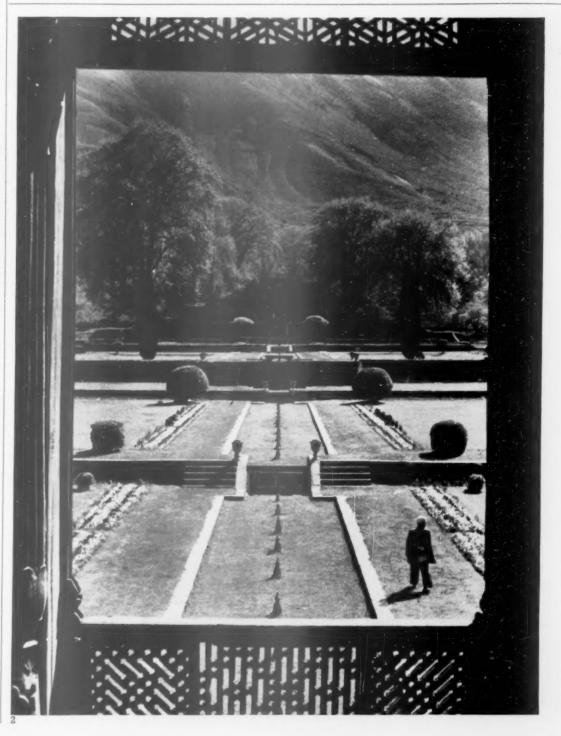


1. The patterns on the shawls, best known of Kashmiri artefacts, seem entirely Eastern, with their involuted floral modifis that the tidy mind's eye promptly refers to Persan and Mogul painting—but might it not be another uprising of that anti-Euclidian underground movement that produced the ceilings of the Roman catacombs, Gothic tapestries, William Morris wallpapers, Jackson Pollock's paintings?

2. These gardens of Kashmir drive home a related point—that there have been other classic arts besides that of Greece. The Nishat Bagh, built by Jahan's chief minister, rising in twelve terraces from the lakeside to the foot of the Himalayas, driving a regular rectangular geometry across a wild countryside, is as classical in spirit as any of the great formal gardens of Europe, yet almost every detail—the handling of the steps, the trellis screens of the pavilion-reveals the operation of a different mind, grounded in another culture. In landscape and townscape, too, Kashmir offers the eye prospects that you might be tempted to place anywhere else

Kashmir, though traditionally and politically a dependency of the Indian sub-continent, lies farther north than Tibet, and extends a variant of South Asian life and culture deep into the heartlands of Asian land-mass. Prehistorically a gigantic lake, a lowered water-table has left it as a flat bottomed valley, still well watered, about eighty-five miles long and twenty-five wide. There are many lakes, and the capital, Srinagar, lies on both banks of the Jhelum river, near the geographical centre of the valley. Its people are peasants, and craftsmen with a celebrated sense of decorative pattern, whose painted ware and shawls enjoyed world-wide fame as far back as the times of Imperial Rome.

Access to the valley is still difficult—no railway serves it—but successive ruling classes in India have been prepared to face the rigours of the Himalayan crossing in order to enjoy its moderate summer climate and escape the heat of the plains. They have left their mark in two unmatched types of pleasure-architecture: the house-boats (AR, February, 1957) created for the British, who were forbidden to own land in the valley, and the great terraced gardens laid out for the Mogul emperors in the seventeenth century, in character something between the traditional walled 'paradises' of Islam, and garden-planning on the scale of Versailles. The emperors and the memsahibs have departed, the valley is remembered in the Anglo-Saxon world for its shawls, and for the stream Shalimar that feeds one of the mogul gardens, and found immortality in a sentimental ballad of the house-boat period. But because it lies north of Tibet and is claimed by both India and Pakistan, the cool paradise of Kashmir is continually threatened by violence.







in the world, did not some detail suggest another, utterly different part of the globe.

3. In places, the land-form and vegetation is so like Tuscany or the Euganson Hills that the mind's eye can almost reconstruct the watercolour by J. R. Cozens or the sketch by Richard Wilson that should immortalize the scene.



4. The straight Kashmiri reads lined with poplars—European influence? No, they were laid out by the Megul Emperors, and the poplars were planted at the behest of Nur Jahan, most gifted of Empresses.

5. The workboats of the Kashmiri lakes are Asiar, too. But when two Kashmiri farmers draw the sterns of their dembnavs together to mull over the day's business, they reveal an underlying similarity of occupational attitude to that of peasant-farmers far to their West—but for their clothes, and the mountains behind, they could be in the wet-lands of Europe; the delta of the Po, or the Gironde.



6. Yet if you try to stretch the Italian parallel far enough to make of Srinagar, the capital, another Venice, the houses that crowd the banks of the Jhelum river immediately thwart the effort by being so unmistakably Asian—East Asian, indeed, like the riverside houses of the cities of China.

The illustrations to this article are by Roderick Cameron, and are taken from his books. Shadows from India and Time of the Mango Flowers, both published by Heineman. Shadows from India was published in June and Time of the Mango Flowers will appear in August.





Belgrade Theatre, Coventry

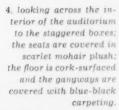
1, entrance to the theatre at night.

This theatre designed to seat an audience of 910 has one frontage on to Corporation Street, where the main entrance lies and another frontage on to a new square which will be laid out with grass, trees, a small pool and paved areas. The foyers and bars of the theatre will overlook the square and the ground-floor foyer will open on to the terrace alongside. At present there is a

architect : Arthur Ling (city architect and planning officer)

principal : Douglas Beaton

group Kenneth King architect



5. armchair specially designed for the boxes,

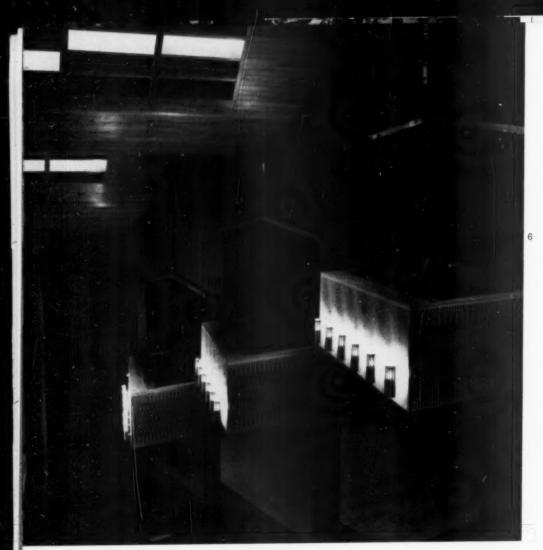


2, entrance below the portecochère. On the left is an office and flat block with the auditorium and glass-walled foyers behind.





3, the foyers at night seen from the site of the new square.





7. entrance hall with ceiling of corrugated p.v.c.
8. box office; the surrounding wall is faced with white Sicilian marble.
9. on the facing page, spiral light fittings suspended through the double-height of the foyer.
10. the ceiling over the first floor foyer bar is of Yugoslavian beech.
11. staircase well; at the foot a seated bronze figure by George Wagstaf.
12. light fittings in the first floor coffee room, the reeded ceiling is of Yugoslavian beech.

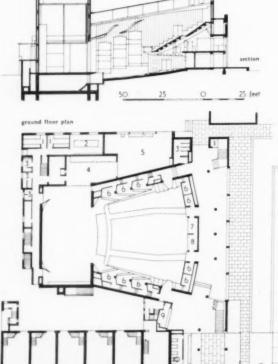


9 11 12



BELGRADE THEATRE, COVENTRY

6. upper tier of boxes, 6, upper tier of boxes, seen from the circle. The panelled walls are of plywood veneered in makore, a West African hardwood. The sound reflectors are faced with Yugoslavian beech, a gift from the City of Belgrade.



The ground-floor foyer approached through the main entrance hall has a small coffee bar adjoining. A coffee-room to seat 60 people for meals and refreshments is situated on the first floor: a curtain separates it from the foyer which has a bar running alongside. On the rear walls of the foyers of both floors is a mural in mosaic designed by Mr. Martin Froy, based on a theme

temporary garden covering only part of the

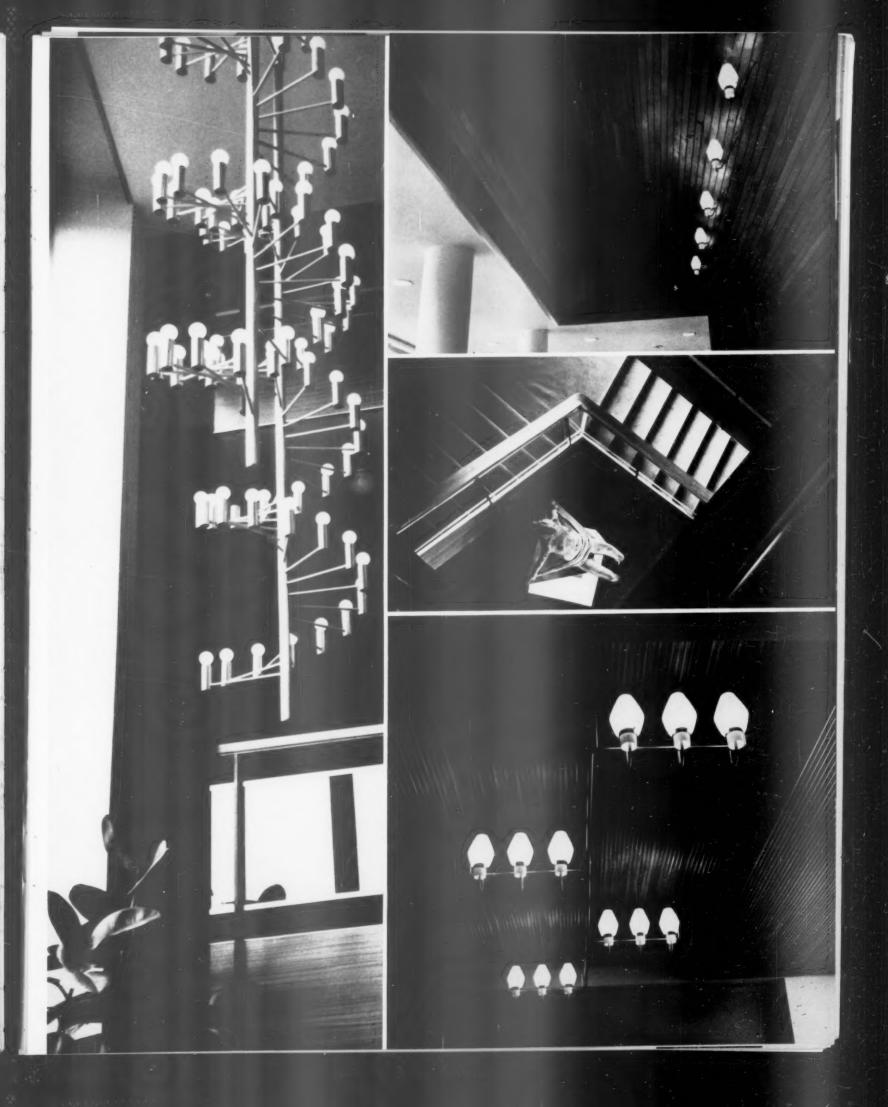
future square with a screen at the end to conceal

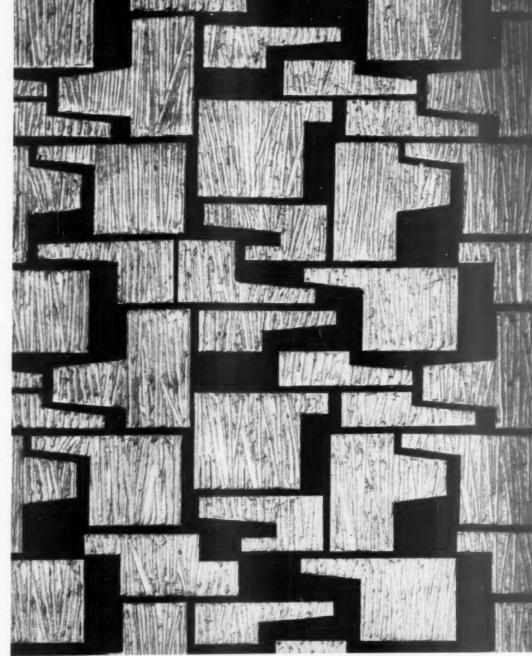
The auditorium has boxes arranged in two tiers on each side and they also line the rear of the stalls. There is one balcony with entrance from either side and is divided into a circle and a dress circle. The orchestra pit can be covered over to provide a fore-stage when

an unsightly view behind.

of the four seasons and carried out in a wide range of Swedish and Italian tesserae. Openings on the first floor giving views of the lower floor increase spatial effect in the foyers.

Recirculating type heaters, supplied by an oilfired boiler, are used and are built into the fabric of the building; the automatic ventilating plant with its warm-air system for the auditorium ensures a sufficient number of air changes.





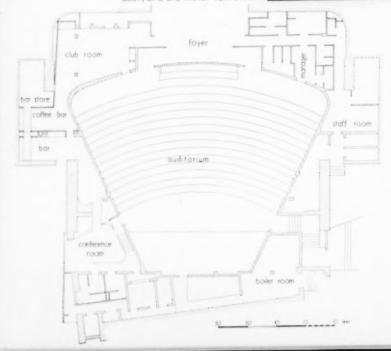
13. the most striking and original feature of the interior of the National Film Theatre is the roll-away masking screen of abstract shapes, heavily textured and gilt, that is used to trim the screen size to varying picture formats (see 15 and 16. opposite). The shapes are carried on metal rods running in tracks top and bottom, a kind of skeleton sliding door, and are motor-operated.

National Film Theatre

architect: Hubert Bennett (architect to the LCC)

The southern arch abutment of Waterloo Bridge on the South Bank was used as a housing for this theatre, thus the planning approach was conditioned by the existing vault, the largest factor being the limitations of height caused by the cantilevered bridge members and the access limitation of the surrounding structure. Consequently the positions of the screen and the projection box were predetermined. The entrance foyer is directly below the projection suite and small theatre.

With a capacity of 504, the auditorium is on one floor sloping down from the foyer level and is defined by a continuous wall, above which is suspended a canopy formed from a series of fibrous plaster equilateral triangles following





14. a view towards the club-room side of the entrance foyer, showing the booking-desk at the extreme left, then the entrance to the auditorium, the club-room door, and the spiral staircase down from the projection boxes, etc., on the floor above.

the general shape in total of a segment of a truncated cone. The projection screen is free-standing within the screen wall of the auditorium but outside the canopy. Seating is concentric following the limiting angles of wide screen projection and the viewing distance ranges from 24 ft. at the front to 64 ft. at the rear row. Decoration is subdued in tone, the wall is of a natural obeche timber, the specially designed carpet is in green, black and grey, the canopy light grey and the seating green.

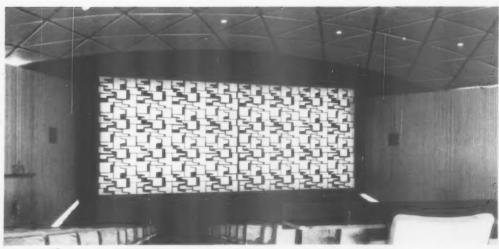
Lighting and finish in the foyer have been devised to provide the maximum brilliance at the entrance, where the passer-by will view through extensive glass screens the advance booking desk.

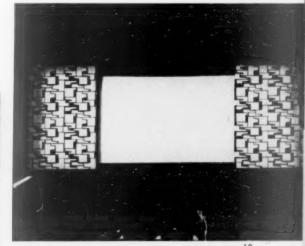
The small theatre will seat up to 18 persons and is intended for editing and compiling programmes. To the right of the auditorium is an area wholly occupied by the clubroom which falls into three sections, two of which share bar facilities.

The heating, which is by gas, the ventilation and the electrical intake chamber are sited behind the screen with separate external access.

The deputy architect to the Council is F. G. West, the senior architect, General Division, is D. C. H. Jenkin, the assistant senior architect, General Division, is K. J. Campbell, and the project architect is Norman Engleback.







15 and 16, two positions of the masking-screen. 16 also gives an idea of the complete visual separation of the side walls, of vertical obeche boards, and the ceiling of triangular fibrous plaster panels.







1. a new design for the standard G.P.O. telephone will be available early next year. It has the approval of the Council of Industrial Design and is very similar to the Centenary Neophone by Siemens Edison Swan, 2. Both designs are more compact than the present G.P.O. instrument and are about two-thirds of its weight. In each case the general shape is the same and retains the established practice of a handset resting in a cradle. Unlike the current model, the inclined face carrying the dial extends the full width of the case allowing room for an enlarged external dialling ring, though unfortunately making the instrument too wide for an overall grip for lifting without disladging the handset.

In neither design is there real geometric consistency of form and this is particularly noticeable in the G.P.O. instrument where the junction between cradle and case slides uncomfortably from a cust to a wrought expression. The Neophone achieves a closer relationship in contour be-

tween handset and base, and the cradle rises naturally as part of the horseshoe shape of the case. The design of an instrument to be

The design of an instrument to be gripped by such a diversity of hands must be an ergonomic compromise, but on the whole the new G.P.O. model achieves a fairly satisfactory balance between function and aesthetics. In the first production models the present standard dial will





be used but an improved design is to be considered for later versions. This would be an opportunity to make the dial flush with the face of the case as in the German model, 3. The typography in the centre of the dial could certainly be simplified.

It is probable that all these designs owe a lot to the current American model, 4. designed by Henry Dreyfuss about seven years ago for the Bell Telephone Company, Unfortunately they have not achieved the same direct approach in design. In the American version there is a happier relationship between the dialling ring and the case, and the cradle is visually more robust, also the coiled spring cord covered with plastic is an improvement on the braided cord used in the other designs.

TOWNSCAPE



STREET FURNITURE AT THE NEW ELEPHANT AND CASTLE

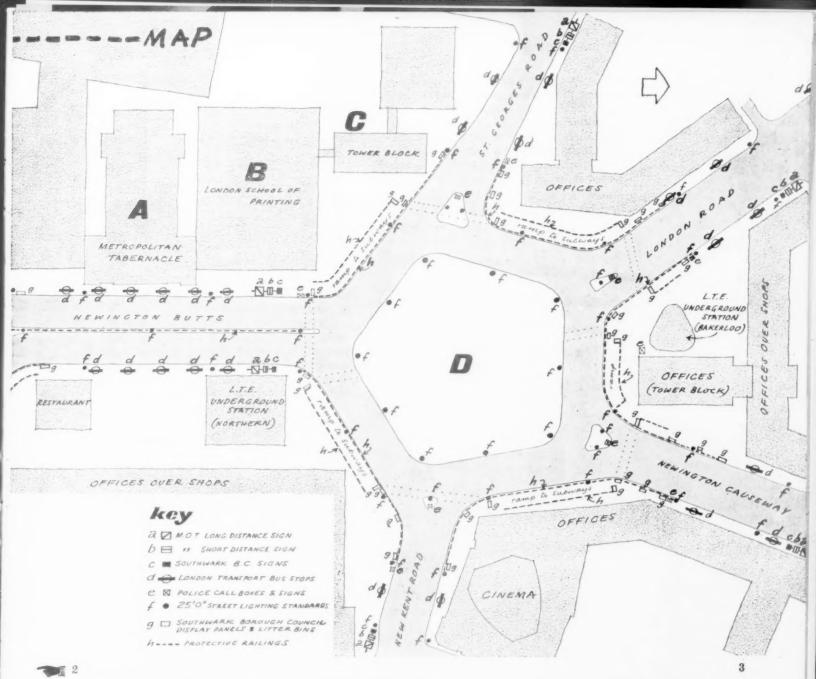
Street clutter, that universal townscape problem, becomes acute where heavy traffic converges at complex road junctions and the Elephant and Castle is a good case in point. Here the approaches to seven Thames bridges meet and the number of direction signs alone is staggering.

The rebuilding of this heavily bombed area is the largest comprehensive re-development scheme on the LCC plate. The scheme is under way and the model promises some interesting buildings by the LCC architects, such as the new London School of Printing, plus a 3D control on the form of the architecture generally. However, one wonders whether the same

attention is being paid to all those street objects which will constitute the foreground to the new buildings for, idiotic as it may seem, the LCC, as planning authority, can only advise on street furniture and its placing; the last word is with the borough, Southwark.

The evidence that Southwark will make a good job of this is not encouraging to judge by past performance, e.g. St. George's Circus, 1 (above), 2 (bottom)—a dreary and jumbled collection of signs and hang-dog concrete lamp standards (why so many?) round a tumulus roundabout dotted with flower beds no one can get near. The map overleaf,





3, shows the new Elephant and Castle with street furniture plotted on it in deadpan accordance with the rule book. If you think it looks cluttered, remember it doesn't show the smaller signs, the 'phone or pillar boxes, beacons, seats, underground signs, lavatories, kiosks, slot machines and many other objects, position unknown, which will certainly be dumped down somewhere. A glance at the opposite page, all pictures taken in Southwark, gives an idea of what it's going to look like if someone doesn't take things in hand pretty smartly. Most of the things shown have obviously never been considered as visual objects at all and certainly not in relation to one another. Why, for instance, is the Ministry of Transport long-distance sign, a, afflicted with gout and why no thought for what it looks like from the back? (still part of the street after all). And look at the splay-legged LTB shelter, d, against the verticals of bus stop sign and sign a, and why do you need bus shelter and sign as separate objects? Take the 'No Right Turn' sign, k,

why does it have to be lopsided and covered in pipes and black boxes at the back? And look at the fuss made in p just to say 'Turn Right.' Why does every refuge need an overgrown Belisha beacon, I, like something from 'Alice through the Looking Glass'? (you see these freaks even in the country now). And the litter bins that you never use twice because they have to be opened and the lid nearly takes your fingers off coming back. And the dreary posters, pro, warning pedestrians, no driver would see them, of the dangers of drunken driving. And so on. The downright squalor is sickening yet Southwark seem so proud of it all that they have separate name plates tacked on to the signs, p.

Concrete lamp standards, f, are replacing the existing metal standards of the same height. Though not the worst design the new is aggressive and too bulky (see the comparative girth of old, 4, and new, 5, for columns of the same height).

Looking again at the new scheme, 3, what about





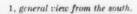


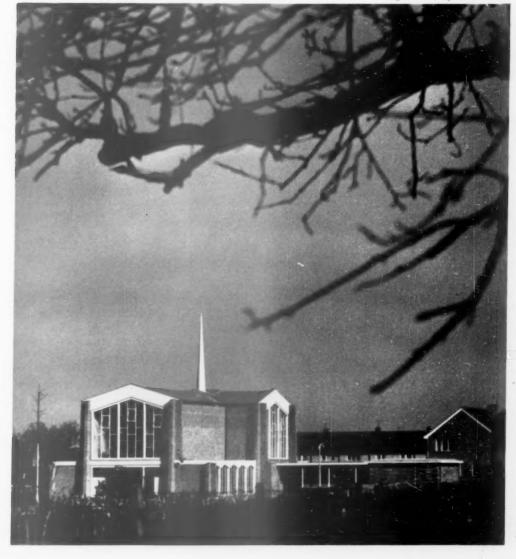
current architecture recent buildings of interest briefly illustrated

CHURCH AT HEMEL HEMPSTEAD

ARCHITECT: C. A. B. GOWERS OF ARCHARD AND PARTNERS

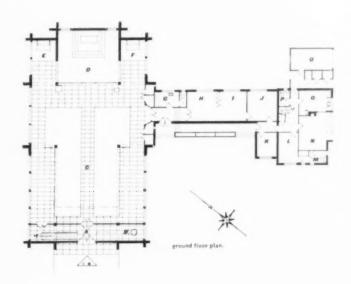
This Roman Catholic church in Adeyfield was required to seat an average congregation of four hundred. The cruciform plan was retained by raising the nave walls on long span reinforced concrete beams over the aisles with four columns at the crossing carrying the entire structure above. Pre-east concrete units fairfaced and







painted are used in the construction of the aisles and the nave walls are of 131-in, brick faced with Sussex Stocks, The pre-cast cranked roof beams weighing approximately seven tons each were hoisted into position on the site by crane. Over the crossing the roof has been opened up to show the full length of the centre fleche, which is 38 ft. long and constructed in Columbian pine sheathed in aluminium; this is supported on the exposed valley rafters and projects to a point in the body of the church. The lantern-light formed round it is 14 ft. square and glazed in wired plate glass. Over the high altar is a mural by R. J. Lloyd depicting the subject of the church's dedication—the Virgin as the Queen of all Creation.



111

2, the aluminium-covered flèche.

3, the sanctuary seen from the choir, showing the mural and the fleche projecting through the lantern light.







5, north façade and

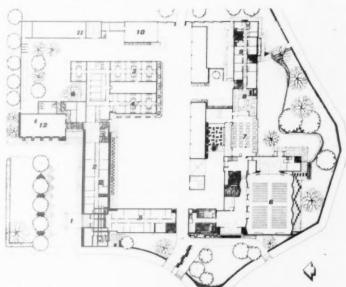
POLICE HEADQUARTERS AT COVENTRY

ARCHITECT: ARTHUR LING (City Architect and Planning Officer in succession to Donald Gibson)

PRINCIPAL ARCHITECT: GEORGE SEALEY PROJECT ARCHITECT: WILLIAM MANN

The buildings provide administration, traffic and CID blocks, and a social wing with assembly hall, canteen and club, as well as residential quarters for single policemen and a caretaker's maisonette. The plan is based on an internal parade ground. On the north side is the fourstorey administration block incorporating a divisional police station. This block is linked on the west side by the traffic and C.I.D. block. On the south side is a social and residential block incorporating an assembly hall, canteen, elub room, residential quarters and a caretaker's maisonette. The assembly ball is self-contained, and can be let for outside functions. Maintenance workshops and stores form the east side of the square.

The main buildings have steel frames eneased in concrete to give a two-hour fire protection. The bricks are golden buff and the administration block has slabs of travertine marble below the windows and concrete columns faced with Hornton stone. The south wall of the assembly half is faced with exposed aggregate slabs, The windows are purpose-made galvanized steel in wood or travertine sub-frames and all the main entrance doors are fully glazed. The pitched roofs are copper laid on hair felt and woodwool slabs over light steel trusses and angle purlins; flat roofs are reinforced concrete finished with three-coat asphalte. The staircases are reinforced concrete with insitu terrazzo treads and risers, and the office and corridor floors are of cork or thermoplastic tiles. The entrance hall floor is random marble mosaic-The beating is by means of natural convectors in the offices and forced air convectors elsewhere.



6, detail of windows and balconies in the north-west corner, traffic and C.I.D. block.

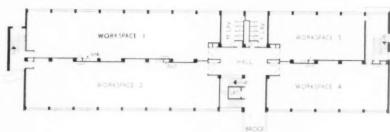




7, curtain walling on the

FLATTED FACTORIES AT BIRMINGHAM

ARCHITECTS: PHILIP SKELCHER AND PARTNERS



This is the first flatted factory to be completed in Britain, housing forty-six tenants displaced by redevelopment projects and the clearing of small-scale substandard industry. The site is 51,000 sq. ft. of slum clearance in Dartmouth Street, north-east of the city centre. The building has two eight-storey blocks at right angles to each other, connected by a short link to give a T-plan, with pedestrian and goods lifts, staircases and lavatories located at or near the junction. It provides four work-spaces per floor in one block and two workspaces on each of seven floors in the other block, with sub-stations, meter rooms, stores and loading bay on the lower ground floor; each block has a central spine wall so that all workspaces have one long wall of glazing. Each unit is provided with its own supply of water, gas, electricity and telephones, and provision is made on the top two floors for the installation of extract plant for spraying processes if required. The construction is r.c. column pads carrying r.e. frame, floors, roofs and stairs, and some internal walls, all cast in situ. Internal partitions are fairfaced brickwork. Externally the building is elad with curtain walling, precast exposed aggregate concrete blocks, or brickwork. The galvanized steel curtain walling on all long elevations of both blocks is fixed back to 9 in. brickwork under-cill panels or to concrete edgebeams with expanding bolts; the glazing is 70 per cent of external cladding area. The short end walls of both blocks have precast concrete cladding blocks with two kinds of exposed aggregate finish.



typical upper floor plan.
scale 1/48in. = 1/t.

BOOKS

A CURE OF STONES

STONES OF BRITAIN: A pictorial Guide to Those in Charge of Valuable Buildings. By B. C. G. Shore. Leonard Hill (Books) Ltd., 1957. 66s.

Colonel Shore says of his book, almost on its first page: '. . . it turns out to be a staccato series of notes-no doubt suitable for people of a simple intelligence like my own-as uninteresting as history with all the small details, the colour and understandable human interest, left out.' Which is a great understatement, both in that the notes are more staccato and that the human interest is more obviously present, than the author will admit. But it is impossible not to admire his enthusiasm, and the sincerity in which he shows his love of old stonework, whether in church, house, castle, road, or bridge-wanting to preserve them, encouraging and helping others in the continual struggle to preserve them, and in this volume setting down the words and pictures of two illustrated lectures devoted to the task.

The first half of the book surveys the general characters, first of rocks as such-chemical composition, physical properties, liability to decay-and second, of rocks as building materials, and the special problems of extraction, dressing and laying that they present. This section includes a very good list of British (and a few foreign) building stones, with descriptions of appearance, notoriously difficult to do in words that carry any aesthetic sense. Unfortunately the photographs do not adequately back up the text, for half-tone reproductions cannot convey the texture of a stone satisfactorily—the granite mullions of Trerice Manor are hardly distinguishable from the sandstone balustrades at Hever Castle. It seems rather unnecessary to show ages of the rocks in millions of years instead of providing an accurate label that would make it possible to identify them on a geological map.

The second half is the more useful to the architect. It deals with the actual maintenance of old stonework, both the large-scale support and repair of grossly decayed or deformed structures; and also the small-scale treatment ('dentistry') of detail-decay, the curing of water-penetration, internal weathering caused by space-heating, improvement of poor or inappropriate pointing and rendering, and so on. Here the use of 'before-and-after' sets of photographs is effective. Practical details of use of, and recipes for, cements, mortars and renderings appropriate to specific conditions and combinations of building stones and site, and the use of silicon ester as a bonding agent in crumbling stonework, are all well covered.

But, with all this enormous amount of information, detailed observation, shrewd and often very amusing comment, what an altogether infuriating disarray! Not only is the matter itself almost intolerably mixed and inconsistent, but the typography and layout are also more or less crazed, so that of 302 pages over 80 are in effect half-blank. The reader must be prepared to do his own quarrying, or to use Stones of Britain as an agreeable meadow in which to browse. From time to time, quite without warning, he will get a sharp slap from Colonel Shore, devotedly needling any complacent or subtopian tendencies that may be sprouting among the caretakers of Old England.

7. G. Mules

ONE MAN'S SHRINE

THE CHAPEL AT RONCHAMP, By Le Corbusier.
The Architectural Press. 25s.

When I first visited the Chapel of Our Lady of Ronchamp I had just made a fairly intensive study of the modern Swiss churches, which are carefully planned, primly detailed and immaculately constructed and land-scaped.

The first glimpse of Ronchamp from the main road is of great angular shapes of light material on top of the hill—as if a giant had thrown there some vast pieces of chinaware—it is compelling and exciting. And the long trek up the road which two and a half years ago was a rough track and is now made up with tar macadam, was a most rewarding prelude to seeing the building itself.

As one labours up the slope, tantalizing glimpses are revealed as the chapel comes nearer and nearer, and when finally the great sculptural mass rears its head I got, and still get, the same feeling of awe that one experiences on visits to Chartres and Durham.

The building is pure sculpture, both in the solid externally and in the void internally. There is a oneness about the interior which is most impressive as monumental form rolls on monumental form. This monumentality, the sheer power of the architecture, the plastic boldness of the modelling, and the casual landscaping, the roughness of the approach give it its unique character. It is clear that Le Corbusier was stimulated by the magnificent site and the great panorama which stretches out to the horizon.

He has done everything himself, painting, stained-glass and landscaping—it all bears the hand of the master—self-confident and strong.

This architecture is such strong meat that it was only after three visits that I could sort out my own feelings in the matter, and in spite of being very enthusiastic for the whole conception and idea, I was uneasy about the placing of the altar, and what appeared to me a lack of climax at this point.

This does not in any way hide the genius of Corbusier which is shown, in my opinion, at its height in the window wall, punctured deep and shallow—the glass painted by Corbusier himself

It is obvious that the only way to appreciate

this building is to visit it. But the book now produced by the Architectural Press, written by Corbusier and designed by him, with photographs from intimate angles and taken with a rare sensibility, is like a visit to the church itself.

It reveals, furthermore, the mind of the artist, his thought and feelings, how he was stimulated by the site, the influence of the crab shell which was the idea for the roof of the chapel—and a surprising thing: his humility, and the fact that he was obviously affected by this commission and moved by the religious significance of it. This is perhaps why the church is such a compelling religious building and so significant in our own time.

It reveals also a further proof that Corbusier is a great artist, as all great artists are dissatisfied with their work and two intriguing pages at the end of the book show that he is not certain about the placing of the altar and the altar cross, which as he relates was ceremonially carried up the hill and placed in the church. The suggestion that the altar cross should be placed to the side in the sanctuary makes me feel that the unsatisfactory existing arrangement has been cancelled out and that if this new idea is put into effect the small criticism that I had would be in the main answered.

It is interesting to examine Corbusier's first sketches and it is significant that the idea of the first sketches grew into the building.

Although I am not particularly impressed with Corbusier's literary style, all those interested in church architecture, or the work of Corbusier, should not be without this book. It also contains many plans and elevations and details of the structure, and progress photographs.

Basil Spence

PATCHWORK INTO PARK

MEDIEVAL ENGLAND. By M. W. Beresford and J. K. S. St. Joseph. Cambridge University Press. 45s.

This is the second of the 'Cambridge Air Surveys' (the first was of English Monastic Sites) and very comforting it is, all free-shaped fields with blobs of trees dropped at random into them, with compact villages, towns curvilinear or rectangular, and the council housing scheme, if it appears at all, modestly tucked into a corner of the photograph. From the air Bournemouth looks better than Bristol, and even subtopis looks pretty, particularly at night when there is nothing but the fiint glow of weaving street lamps to be seen.

In other words, air photographs mislead. To people used to reading plans, a map and a ground level photograph are a great deal more informative, if it is information one is after. But for visual pleasure, air photographs, even monochrome stills, so long as they are taken from under a thousand feet, will do very well, at any rate until we have home cinerama in colour, which alone seems to

convey the exhilaration of the balloonist's view of the world.

And low-level air photographs have lately been found to have another advantage. They are historical X-rays. In them the past 'grins through' the present, like an old Master through later overpainting. The most technically valuable sections of this book are the air-views of whole parishes, with their complete pattern of open-field strip cultivation underlying the present hedgerow pattern, or of some bumpy pasture which from above takes the clear form of a vanished village, probably depopulated by the Black Death. In these pictures the harsh, functional, medieval landscape, like a huge allotment patch cut out of the wildwood, is tangible in a way it can never be in old maps or diagrams in a social history.

Why it was that the Elizabethan and later enclosures, instead of sticking to the dead-straight alignment of the furlongs, and thereby transforming our landscape pattern from a parquet to a pavement, chose instead to weave their sinuous hedge lines, and thereby make it such a 'natural' for the air-photographer, this book, like others, fails to explain. Old tracks, streams, contours are some explanation, but not all. We can only be thankful they did.

The villages and ancient towns chosen for illustrations are perhaps a less comprehensive lot than an architect would have chosen, and many of our best loved examples are missing. In many cases viewpoints are too high and too oblique to set off their 'line of beauty' at its best. Still, the complete range from the geometrical to the fanciful is there. Two of my own convictions are confirmed. The first is that the free placing of individual small houses in subtle relationship with the landscape and one another is uniquely exemplified in England, yet the lesson is still lost on most people who have the same job to do today. In other words, we are the martyrs of the buildingline. The second is that nearly all these villages are the perfect nuclei for decentralized living in the motor-car age, if only we had more than a score of designers with the right vision.

I hope I have shown that this is a thoroughly stimulating book to anybody concerned with or about our changing landscape.

Lionel Bret

TOO LITTLE AND TOO LAX

THE NEW CAMBRIDGE MODERN HISTORY, Vol. VII—THE OLD REGIME 1713-63. Edited by J. O. Lindsay. Cambridge University Press, 1957, 37s. 6d.

It is very doubtful whether much can be achieved in the way of an enrichment of understanding by setting aside for an account of the visual arts and of imaginative literature twenty pages out of a total of five hundred and ninety dealing with sixty years of the history of the world. Yet this is what the editor of the seventh volume of the new Cambridge Modern History has done. In addition, he chose Sir Albert Richardson as his author. So he received on the side of literature a competent abrégé by an amateur, and on the side of art and architecture a number of readable pages

by an expert, but one who took distressingly little care to verify his details. The whole looks well enough, although it is a little overweighed on the English side, but there is no excuse on the part of the author, editor or publisher's reader for printing Curtoni for Cortona, Poppelmann for Pöppelmann, Warzburg for Würzburg, Juvari for Juvara, Here for Heré, Jean Raoul de Largillière for Nicolas de Largillière, Boucharden for Bouchardon, Reynolds born in 1732 for 1723, Gainsborough born in 1717 for 1727, Blondel died in 1779 for 1774, Claude Gelle for Gellée, Charlottenberg for Charlottenburg, Nymphenburg in Austria for Bavaria, and Sanssouci designed by Dietrichs (whoever he may be) for Knobelsdorff and Frederick the Great himself.

The architectural reader will hope for the sake of so highly respected an enterprise as the Cambridge Histories that the other chapters of this volume have less than a dozen mistakes or misprints for every twenty pages.

Shorter Notices

The Housewife Book of WINDOW BOX GARDENING, by Xenia Field. Hulton Press, 9s. 6d.

The number of people who have to live cut off from the soil and from growing things is constantly increasing, but their sense of uprootedness may be slightly eased if they can only get their fingers into a patch of earth, however small. Nothing could therefore be more timely than this new edition of Mrs. Field's small book on window boxes. It has been extensively revised and sections on baskets, tubs and climbers have been added.

It is invaluable for beginners, since, like the best kind of cook-book, it assumes complete ignorance on the part of the reader. Clear and detailed instructions are given for construction and planting and there is sensible advice on what, where and when to buy. For those who would like to be adventurous—and in Mrs. Field's experience there are all too few such—there are some amusing suggestions. The country box, for instance, with cowslips, harebells and lady's smock, quaking grass and ferns, would be a wonderful piece of escapism, while the practical-minded could almost keep themselves in herbs or salads.

Denise Brown's drawings combine with eight full-page photographs to make the book attractive as well as useful, and its modest price puts it well within the reach of those who are most in need of it.

Susan Jellicoe

THE SURVEY OF LONDON, VOL. 27.
SPITALFIELDS AND MILE END NEW
TOWN. Athlone Press, 50s.

The Survey of London is speeding up and getting better as it does so, a remarkable reverse of the usual situation. As in the preceding volume (St. Mary, Lambeth) many Victorian buildings are included, but still very few twentieth-century ones, which is a pity, when all the information can still be got first hand; however, the main job here has been to trace just how the incredibly

fully-preserved streets of early eighteenth century houses in Spitalfields were built. This work, which is all original research, has been admirably done and shows a patchwork of builders and carpenters leasing individual plots: unhappily nothing has come to light to show who provided the elevations.

Also new is a detailed account of both the design and building of Christchurch, Spitalfields, by Walter Ison, which is a splendid job of detective work. Now Spitalfields is all overcrowded slums and the famous Artillery Lane shopfront is in a bad way; sooner or later some councillor will clear the lot unless the LCC gets there first with a face-lift. The opportunity is magnificent, as the photographs in this book show; Spitalfields could become the City of London's Chelsea.

I.N.

Books Received

DRAINAGE PIPEWORK IN DWELLINGS. By A. F. E. Wise. Her Majesty's Stationery Office. 10s. 6d.
THE STRONGHOLDS OF INDIA. By Sidney Toy. William Heinemann Ltd. 30s.
PHOTOGRAPHES AERIENNES ET AMENAGEMENT DU TERRITOIRE. By A. Burger. Dunod Editeur, Paris. 1,700 francs. CULTURAL FOUNDATIONS OF INDUSTRIAL CIVILIZATION. By John U. Nef. Cambridge University Press. 20s. FORM AND FUNCTION. By Horatio Greenough. Cambridge University Press. 10s. 6d.
THE CATHEDRAL. By Clive Sansom. Methuen & Co. Ltd. 10s. 6d.
WHERE LONDON ENDS. By E.W. Martin. Phoenix House Ltd. 30s.
HOUSING: A Factual Analysis. By Glenn H. Beyer. The Macmillan Company, New York. 42s.
BIO TIME RETURN. By H. Pakington. Chatto & Windus. 21s. DISEGNO E ARCHITETTURA. By Luigi Vagnetti. Societa Editrice Vitali e Ghianda. 2,500 lite.
SHOPS AND STORES. By M. Ketchum. Reinhold Publishing Corp., New York. Chapman & Hall, England. 60s.
HIGH SCHOOLS TODAY AND TOMORROW. By Charles W. Bursch and John Lyen Reid. Reinhold Publishing Corp., New York. Chapman & Hall, England. 60s.
FRANK LLOYD WRIGHT TO 1910. By G. C. Manson. Reinhold Publishing Corp., New York. Chapman & Hall, England. 60s.

CRITICISM

REBUILDING IN THE CORN

The image of a new modern building in Oxford is like discovery: there is something heroic about it.

One supposes, and, I think, not unreasonably, that this is because a kind of nostalgia hangs over the city, an eighteenth-century spell. After all, the special brand of magic one associates with the place-a concentration of some of the best architecture of the best periods crammed together within a very small space (All Souls, Queen's, Tom Tower, the tangle of quadrangles and the rest)has nothing much to do with what came later. The Victorian contribution was limited to imitation. And so far, the present century, hobnobbing with Georgian and Gothic, had added practically nothing of its own except the traffic jam. The clean lines of good modern architecture would, therefore, have perhaps a greater impact and definition here than in most places.

An architect for an important design in Oxford is, then, handed an excellent opportunity to do something of particular interest. But he starts off under difficulties and these spring from a certain apprehension—the quite understandable



1. Sir William Holford's elevation to the new Woolworth's store, on the site of the old Clarendon Hotel, in the Cornmarket, Oxford.

fear of spoiling what already exists. And this fear was given a special meaning in the case of the erection of the new Woolworth building, 1, which was replacing the old Clarendon hotel, a decent eighteenthcentury building, over the removal of which there was a great deal of controversy. There were two main reasons for the strong feelings that this matter raised. One argument was that the Clarendon was the only piece left of the original street; the other, that its spacious façade was a simple and necessary element in an otherwise muddled setting, a check to a confusion of styles and litter of disorganized roof-lines such as one might find in any provincial town.

The opposition to the demolition of the Clarendon was not, therefore, only for sentimental reason: its loss might mean, in one way or another, the end of the Cornmarket. And the fact that the new building was to be a store-and a Woolworth at that-added to the problems: the site was not considered an appropriate one for a large shop which would only increase the already intolerable congestion. Out of the controversy and argument, then, two main conditions for the street front of the new building emerged. First, the façade should produce an aesthetic effect which was, at any rate roughly, comparable with that of the previous building; and, secondly, the shop window should be well set back from the main pavement.

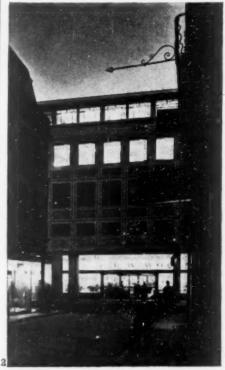
There was one further complication. The situation which faced the architect on this occasion was unusual: he was asked to apply an elevation and an entrance to a structure, the body of which was designed by another architect.

It was against this rather complex background that Sir William Holford

conceived his plan.

The architect has made a real attempt to meet the needs of the street; he has achieved a simple and spacious façade, while at the same time the window levels echo the lines of the adjoining houses, thus preserving a necessary continuity. By concealing the staircase behind a plain rubble wall, and thereby concentrating his windows at one side of the elevation, it is possible that his aim was to preserve a human scale. If this was his intention, however, it is questionable whether the result is entirely successful, for the plain expanse of wall gives an appearance of heaviness. Looked at as a whole, the building is of a tough, if somewhat unequally poised, design: seen from Carfax it looks right, seen from St. Giles less satisfactory. But Sir William's arrangement of window to wall area raises a point which concerns street architecture generally, and this is to do with horizontals and verticals. The character of a street is by nature horizontal and seems to need

some other element as a contrast. Windows can give this and can make, as they do, for instance, in a Georgian elevation, a taut opposing movement which is like a rhythmic beat in an otherwise flowing melody. In the modern elevation it is accepted that this question of directional emphasis often becomes a matter of adjustment between structural mullions and window divisions, as in the case of Peter Jones. In Sir William's design there is a strong vertical emphasis in the window shapes but, while this is so, the grid formed by the structural mullions and floor slabs produces, when taken in conjunction with the stone walling on three sides of it, a horizontal rectangle which



dominates the elevation. If this window grid had been taken across the whole width of the façade, and if the lower panel on the second and third floors had been

2, above, the part of the fucade
that is seen from Market
Street, showing how the
pattern of fenestration fits
the scale of the Oxford
streetscape; had this pattern
been carried right across the
facade a more effectively
vertical emphasis might have
been achieved.

3, right, the glazed fascia, replacing the normal Woolworth display panel, set back behind the columns of the ground floor.



perhaps glass instead of slate, it is possible, as the view from, 2, Market Street opposite suggests, that this question of emphasis could have been resolved.

For the rest, it is good to see that the directors of Woolworth's had the sense to agree to the omission of their normal gold and red fascia for the sake of the street, 8, and the imagination to choose a distinguished contemporary architect. Even if some of the detail may be open to criticism, the general effect is of a bold, original building, and for this reason it marks a refreshing change: architecture in Oxford has been dabbling ineffectually in the past for too long.

ART IN USE

SUBICONOGRAPHY AT CARSAC

The dominant style of the ancient church of Carsac is Romanesque, with one Byzantine cupola to remind us that we are in the valley of the Dordogne. In the course of restoration, ejecting chandeliers and plaster statuary in unusual abundance, there was a moment of hesitation when it came to replacing the Stations of the Cross. The Abbé Delteil consulted the Abbé Morel, whose opinion, since he has expressed it in writing, we may quote.*

Of all iconography none is more 'compromised by the taste for sensation and spectacle,' to use the jargon of circus and Grand Guignol, than current versions of the Stations of the Cross. This is a sweeping condemnation and would be applied quite unfairly to, for example, Gill's Stations at Westminster, but the average is certainly artistically mediocre, and seldom relies on anything above the crudest 'composition of place.' The problem when trying to adapt the traditional product either to a modern design, which it tends to interrupt, or to a reconstruction of the purity of Carsac, can be acute. At Carsac it was acute. No one who conceived such a monument of simplicity and articulation as elementary as a psalm tone could with the same thought have cluttered it up with fourteen little pictures, however edifying.

The editors of L'Art Sacré assert that the Cross is 'the formal liturgical element' in the devotion of the Stations. The Abbé Morel, having recommended the services of Monsieur Léon Zack, and suggested the adoption of the Cross as the basis of the iconography of pure forms for all fourteen stations, has formulated the following defence: 'It was a case of rescuing from this shoddy farce a sacred sign, one of the

1, the first, and simplest of Stations of the Cross

last this western world has preserved, but one too often marred, alas, by the spirit of routine which corrupts every human gesture—a sign which can be for the Christian far more than a mere résumé of his hope, his faith, his charity.' The sign of which he speaks is as much the ancient Christian gesture as the pattern of iconography, a habit of mind which at once expresses the notion of integrity so characteristic of the French religious revival.

What then did M. Zack achieve for Carsac? The accompanying illustrations convey an impression. Basically, each Station consists of a Cross, which represents the Lord. A subsidiary figure is represented by a smaller 'sympathetic' cross. Both crosses, however, can be 'taken to pieces,' their arms rearranged, curved, etc. Moreover, as the ends of the Cross are boldly splayed, like serifs on a letter, these elements may themselves be used for other purposes. (In the eleventh

not lend themselves to the familiar Meditations of St. Alphonsus. The Prayer Book approach is hardly any use at all,

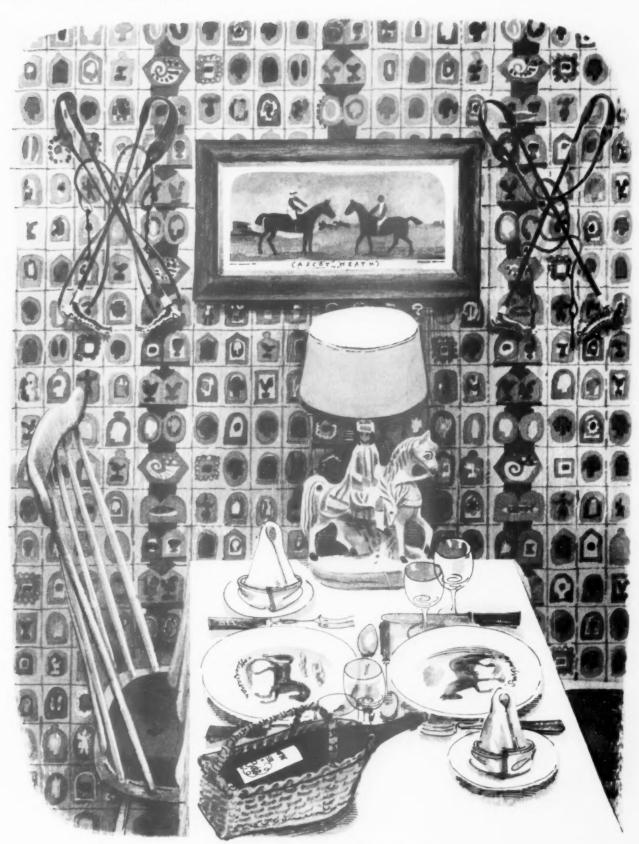
Executed in collaboration with Maxime Adam-Tee the church at Agnalux (Manche), the points we coloning here are that they are in stone, with a far roug ment and equally a less subtle inspiration. The symi-ic less consistent, for instance,



for finding your way. From my own experience in watching a group of quite intelligent and sympathetic visitors being shown round, it is no offence to state that they need explaining-and yet to explain, to impose any explanation, seems to undermine their very purpose. Surely each one is meant to be a mystery, revealing itself slowly, filling by daily, or periodic, drops each pilgrim's receptacle to its varying capacity. In this respect they resemble the liturgy itself, or any spiritual document of real value. Since, however. many have to be converted to the very idea that the Carsac Stations are worth 'making' at all, as opposed to just talking about, execrating, criticizing, etc., a demonstration becomes a necessity. Four Stations are illustrated; if three are explained, the reader can try his hand at the fourth.

The first Station, 1 ('Jesus is condemned to death'), was a problem because Christ had not yet been charged with His Cross, which was in principle to be the basic element of each design. The artist has, therefore, taken the upright shaft, and by the slightest modification turned it into a pillar. Against it is imposed the square which in some Stations is a central bond

station, 'Jesus is nailed to the Cross,' they are repeated as nails piercing the arms of the Cross.) The Stations are in ceramic, natural colour and unglazed, but sometimes tinted to convey an idea arising from the subject. There is neither number nor title to any Station, but extracts from Paul Claudel more or less obviously à propos. M. Zack has not exhausted his inspiration, and has more recently executed another set on similar lines.† Obviously, the Stations at Carsac do



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2, Simon the Cyrenian; 3, Saint Veronica; 4, Christ meets his Mother; three more of Léon Zack's Stations of the Cross from Careac.

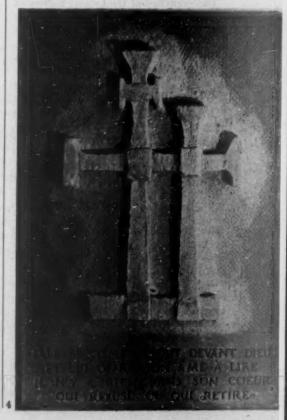
uniting the arms of the Cross. Passing behind the pillar and the bond is a light diagonal bar. Clearly (or less clearly) a bound Prisoner, with the instrument of his suffering at hand, is expressed.

For the three remaining illustrations I have chosen Stations where Christ meets another party, whom the pilgrim may in each case take as a type in whose spiritual office he shares. In the fifth Station Jesus meets Simon of Cyrene, who is compelled by the soldiers to help Him bear His Cross, in the sixth Veronica wipes His Face with a kerchief, and in the fourth He meets His afflicted Mother. I have arranged them according to their degree of intimacy. In 2, we have three elements, the Lord's Cross, slightly leaning, and the two arms of the subsidiary cross, one folded around the Lord's in a pattern of physical strain or embrace, the other transformed into a figure one, linking the other two elements. The tilt of the complete Cross represents the Lord's frailty which necessitated the summons of help. The embracing or straining arm is the Cyrenian, and the text will suggest that the notion of constraint is probably more intended than that of embrace: 'May we too be compelled, even by force, to bear Your Cross, like Simon the Cyrenian. Let us be yoked to its wood.' The figure one implies that Simon is the

prototype of all who 'take up their cross daily and follow.'

8, the encounter with Veronica, shows an upright Cross, linked at the base with a subsidiary cross by a protracted 'serif.' The 'sympathetic' cross is gently inclined towards the Lord's, its arms turned upwards in a gentle caress. There is certainly nothing to represent a veil, but the inscription is the clue to this omission: 'Every Christian is of Christ the true, yet unworthy, likeness.' The tying of the crosses at the base suggests that the beginning of all Christian participation with the Passion is our sharing of Christ's humanity and divinity. This is also the first clue to the interpretation of 4, 'Christ meets His afflicted Mother,' which by way of experiment the interested reader may now attempt to read by himself.

Monsieur L'Abbé Delteil received 2,800 letters of criticism—pro and con—the Stations at Carsac and the work of restoration generally. The fracas has not yet subsided. His parish is in one of the dechristianized areas of France (the Dordogne) where, in spite of a predominantly agricultural society, religious practice falls as low as 10 per cent of the population. Such is in fact the average Sunday Mass attendance at Carsac, population 580, and the patronage of the Commission d'Art



Sucré, in all its manifestations, appears to have influenced the village spiritually neither one way nor the other.

One can criticize the Stations of Carsac on two planes, the spiritual or devotional, and the artistic. As a non-liturgical exercise, the Way of the Cross enjoys, if anything, an excess of latitude in ecclesiastical discipline. It is something, as the Curé insists, to be arrested, to be set thinking, even to be shocked, but no church wants a permanent shocking device or a theological question mark on its walls. In the chapel of an academic institution they would always teach a lesson. What they convey to the 10 per cent 'pratiquants' of Carsae simplicity remains a wide open question. S. G. S. Luff

EXHIBITIONS

PAINTINGS

The ghosts of old question marks have been straying through the galleries like dissolving smoke rings. Was Degas a misogynist? Is it permissible for painters to use photographs? What makes an artist provincial? Was pointillism dotty in more senses than one? Is the Royal Academy an obsolete institution?

The exhibition at the Lefevre Gallery of a remarkable group of monotypes by Degas was a reminder that he has often been represented to us as a woman-hater. Vollard used a number of these monotypes as illustrations to Pierre Louys's Mimes des Courtisanes de Lucien and Maupassant's La Maison Tellier, and the subject gave Degas every opportunity to indulge in a misogynistic revel; but he seems to me to have remained scrupulously faithful to what he observed in the maisons closes. The prostitutes he depicted were as ugly, coarse, stupid and vulgar as their most exacting clients could have wished, but unlike Lautrec, who became expansive in an atmosphere of moral corruption, and unlike Rouault, whose best work depended upon an obsessive disgust, Degas's studies betray no sign of a highly charged emotional response to his subjects.

Degas discovered a whole new world of form when he began to observe women in the same way as he observed animals. He saw their bodies as repositories of energy and preferred to delineate them when involved in some activity—doing the ironing or scrabbling out of the bath—rather than put them into graceful poses. In the brothel studies the women are, in a sense, posing, but the poses are 'occupational'

and the limbs dispose themselves in accordance with a brutally simple law of 'invitation.' The monotypes-they are impressions taken from paintings on metal or glass, and have a pleasantly shadowy and ribby texture—are very small, but full of vitality, and make a contribution to the studies of women at work as impressive in its way as his splendid procession of milliners, laundresses and dancers. The little picture devoted to the occasion of the Patron's birthday, 1, fits into the series as an interval for relaxation. The nakedness of the employees indicates that they will soon be back on the job, but the affectionate pat on the head for the boss, which would be out of order at any other time, is a master-stroke.

Benedict Nicolson, who selected the pictures and prepared the scholarly catalogue for the Arts Council exhibition intended to celebrate a renewal of interest in the eighteenth-century painter Joseph Wright of Derby, remarks in his Introduction that the word 'provincial' should remain attached to Wright 'in the derogatory as well as the flattering sense.' There were great expectations when it became known that Nicolson was preparing the exhibition because, for some not very explicable reason, many of us were hoping that Wright of Derby would turn out to be a painter who had not been given his due. I think we had hoped that Nicolson would be able to show that Wright was a little mad, but his admirable selection has shown that he was a little absurd.

His art is a good professional job that puts him on much the same level as the family doctor and the family solicitor. The portraits reflect his total acceptance of the values of his clients, who belonged to the thrusting, thriving, self-confident group of manufacturers, inventors and scientists who were leading England into the Industrial Revolution. He gave them what they wanted because he had nothing else to give. These portraits would look splendid in the National Portrait Gallery and commonplace in the National Gallery.

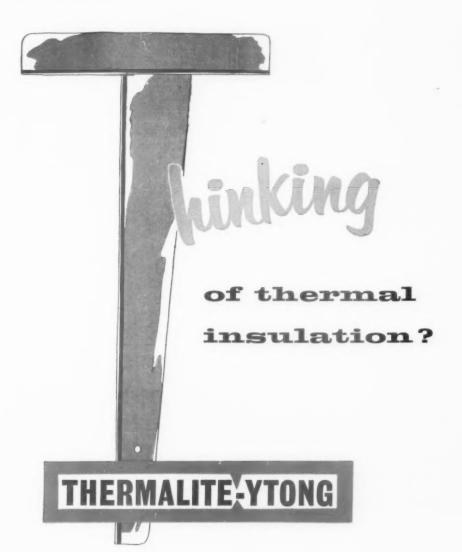
It is Wright's lack of pictorial imagination that makes him a provincial in the derogatory sense. Although the paintings in which he attempted to come to grips with the new world that his friends were creating remain his most interesting works they are at once too literal and too fancy. Too literal because the scientific apparatus in such pictures as 'A Philosopher giving a lecture on the Orrery' and 'An Experiment on a Bird in an Air Pump' do not manage to become anything more than unusual still life elements (if he were alive today he would presumably respond to cybernetics by painting a group of people gazing in astonishment at an electronic computor); too fancy because the groups of posing



figures in such pictures as 'An Iron Forge' appear to have wandered in from an academic set-piece on a different theme. As a belated tenebrist, he handles artificial light intelligently without making any visual discoveries of his own. But the very fact that he tried to deal with revolutionary material in terms of well-tried conventions produced a sedate contribution to genre painting which turned his lamp-lit clusters of intensely absorbed people into involuntary and wholly charming glorifications of bourgeois family life, of which the detail from the large 'Orrery' composition, 2, gives, I think, a confirmatory glimpse.



Russell Drysdale, who has been showing a new group of paintings at the Leicester Galleries, is another interesting painter whose approach to his fascinating subject matter is both too literal and too fancy. In his attempts to come to pictorial terms with the fabulous landscapes and inhabitants of Northern Australia he has been influenced by contemporary English eccen-



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tries and romanties. When he has eccentries like Spencer in mind the results are disastrously facetious, but in 'Red Landscape,' 3, which was one of the best pictures on view, the treatment of the bright red stones on the skyline brings to mind Sutherland's famous picture of the same name. In the picture itself, the red stones do not establish a relationship with the rest of the landscape, which is mere topographical banality, although they comport well with the naked figure in the foreground. Drysdale himself speaks of Northern Australia as 'a world where incon-



gruity becomes the accepted commonplace,' but the incongruities in his pictures point only to intermittances in his pictorial imagination.

The painting called 'St. Cast,' 4, in the large Signae exhibition held at Marlborough Fine Arts, is a pointillist masterpiece, but it is so close in spirit and treatment to Seurat's Port-en-Bessin landscapes that few people would be likely to doubt the attribution if it were ascribed to Seurat. The general effect conveyed by the many delightful watercolour sketches in the show was of a spontaneous contribution to impressionism, but Signac wanted to make great classical figure compositions in a divisionist technique, and the two large and ambitious interiors with figures demonstrated his inability to do so. But they were rather remarkable oddities. The mysterious quality of stillness to be found in many of Seurat's figures becomes in Signae's figures a kind of paralysis, and the

analysis of light turns them into spotted monsters.

In the current Summer Exhibition at Burlington House, the queer and rather sordid-looking flotsam which symbolizes the Academy's tolerance of the modern movement has been distributed among the less untidy work. It has given the general appearance of the exhibition an amusingly raffish air, John Bratby's three enormous canvases have been used as centrepieces. They look as red and sore as ever, but his efforts to renew the impact created by his early paintings of loaded breakfast tables



are leading him into turgidity and incoherence.

John Ralph Merton's portrait of the Countess of Dalkeith, 5, is not a work of art, but by present standards it deserves its award of an 'A' which appears to be the Academy's way of expressing enthusiastic approval. Its virtues are all negative. It's a smooth piece of work, but it's not slimy. It avoids the problem of colour and, instead, is tastefully tinted. The flesh contains a slightly mummifying tinge of green which is not unpleasant and reminds one of a faded colour photograph of blue Danish. The pinkish tinge of the gown-'perfectly matches' the lipstick and nail varnish, in the best suburban tradition, The architectural screen behind the figure is deadly in its symmetry. One could go on in this way, but the fact remains that Merton fulfils a specifically contemporary demand more efficiently than anyone else. He can guarantee a 'likeness' before starting the picture and has worked out a way of transforming the photograph into a luxury object. His portraits, like the paintings by Wright of Derby, reflect a total acceptance of the values of his clients. Robert Melville

COUNTER-ATTACK

75. Spalding and Wisbech. There once was a nice town called Spalding. There isn't really any longer. In a grimly fascinating way the decay can be looked at horizontally—in space, as well as in time. Coming in from the south, along the Crowland Road, the view is almost perfect, 1: the placid River Welland, the calm

Georgian terraces - it's all extraordinarily peaceful and dignified. (The lamentable Odeon is mereifully hidden by trees, and the swan's-necks are the only intruders.) A little farther along, and the scene changes dramatically: the calm gives way to intense vigour and bustle (architectural as well as human) around the bridge, which is really the centre of the town, 2. The visual crisis of the approach to the town centre could, from this direction, hardly be better managed. But already swan's-necks have been replaced by fluorescent right angles, and the urban third degree begins to be applied. By the time we reach the market place, the right angles have it all their own way, ably supported by Bankers' Georgian, 3. Only the White Hart acts as a reminder of what a fine town place this must once have been. On to Hall Place, where the ruin is complete, 4, a desolation of crude architecture and wretched accessories such as only twentieth century English architects and engineers could produce.

Spalding is a text-book case of urban spoliation, Three things, however, can still be done. First, the roundabout in Hall Place looks like the beginning of a fine-wide-road-through-Spalding campaign: the campaign must go no further. It is essential that traffic is given no incentive to speed down Bridge St. and make the crossing with London Rd. and the bridge any more dangerous. Most of the heavy traffic is on the A.16, from Boston to Stamford, and could be diverted along an already existing road linking Pinchbeck Rd. and Winsover Rd., particularly if this were extended to meet London Rd. at its turning away from the river. A second bridge here would relieve the centre of the town of the Cambridge and Peterborough traffic, so that the present bridge would carry only A.151, Bourne-Holbeach,

Second, the east side of the river needs leaving alone. The oddly named High St., for example, is a delightful amalgam of sumptuous Georgian houses and impressive warehouses. It needs keeping up and no more. But it does need keeping up: already the Rectory, the finest remaining Georgian house in Spalding, is in ruins,

Third, Spalding should act as a warning to the other fen towns that look like going the same way....

such as Wisbeeh. There has already been a lot of rebuilding 'in harmony with the traditions of Wisbech' which has produced weak and flabby platitudes such as the Police Station on Nene Parade, 5, and the store, 6, in the Market Place, when the one thing that the traditions demanded was something as up to date as Peckover House was in 1720 or Elgood's brewery in 1800. Worse still is the Trustee Savings Bank in Old Market, of timid and mouse-like appearance, 7, which has replaced, of all things, the early nineteenth century Octagon Chapel (a stockbrick rendering of the Ely Octagon). To remove the Octagon and replace it by modern buildings with the same amount of guts and verve would have been a fair exchange; it is the wasted opportunity that hurts most, the lack of any attempt at a visual statement in any stylistic language. If it had tried and failed, it could perhaps be excused; but not to have tried at all contradicts the very spirit which created the Letter Wisbech.

And that isn't all. Up to now, apart from the Octagon catastrophe, the townscape has stayed intact: angular, wasting no words, with plenty of crisp edges and awkward angles. All these, of course, are to be smoothed down, in a process parallel to the genteel inanity of the architecture. The South Brink has a wonderful Dutch-gibled beginning, 8, the very edge of Wisbech: it is to come down because the road is a fraction narrower there than farther on. Two elergy homes are going to be built there if the scheme goes through; they









had better be good-i.e. announce the town as bravely and decoratively as the Dutch Gable does now.* By St. Paul's churchyard a lunaties babble of formal flower beds with a great big mutilated tree in the middle-is another idiosyncratic building, 9, closing the view and leading the eye on past the churchyard at the same time. It is no bottleneck, but presumably it doesn't look tidy-it is angular and has character, and that is something which twentieth century Wisbech officials don't seem to want. If it is out of date (it is part of the Co-op) then scrap it by all means but let us have a proper modern building, just as

angular and irregular, doing just as much for the street scene. The North Street warehouses are rotting, with no sign of a serviceable modern style to rebuild them, the Wisbech Canal is just filled in and used as a car-dump, 10 They intend to lay it out as a park, sometime; with the present state of things all that will mean is the world's longest flower bed. It could have been a true linear park, a sunk canal-side walk as fine as San Antonio's in Texas (see the May AR).

In other words Wisbech is settling down, with complacent phrases all round, to a bit of selfdestruction just as effective as the H-bomb, though it makes less of a bang. There is still time to save it and it depends entirely on the efforts of the local officials, the local planning committee and the local architects. Nobody is asking for masterpieces, just for an honest straightforward job done with some slight idea of the town's real character. Is that really too much to ask, or is Wisbech a fine example of our new category of rotten boroughs? Ian Nairn

of Transport). A grant has just been made for the first part of an inner ring road for Nottingham. This will run between the Market Place and Castle and the ministry handout euphemistically says 'the scheme involves the demolition of a number of buildings.' In fact, it will involve smashing through a first-rate sequence of Georgian streets-Friar Lane and Castle Gate-and destroying the whole pattern of this side of Nottingham. The present road will be 30 ft. wide: 'the ultimate intention . . . is a new road with two three-lane carriageways.' This may be too late to stop though presumably if compulsory purchase were needed there would be an inquiry; it should at least be clearly seen to be a shocking example of how not to build a ring road. The purpose apparently is to provide 'relief for traffic on A.52 in the centre of Nottingham where there is frequently considerable congestion.' Of course there is congestion - there always will be in a city centre however many ring roads are built. If the need is to speed up through traffic then it should be done by a by-pass or outer ring road; common sense would also suggest that an inner ring road be put outside the pre-nineteenth century boundaries of the city where there is nothing of value to damage -as is being done at Birminghamleaving all of the old centre as one unit.

76. Nottingham. (City Council and Ministry

77. Banstead, Surrey. Strange bedfellows on opposite sides of the road at Banstead, both newly built; a shopping terrace, 11, and a neat





and crisp Courage's off-licence building, 12. The shops have made a clumsy job of a fairly easy problem; the off-licence has done very well with a difficult one, that of the single small detached building. As was said in the note on Wisbech, we aren't asking for masterpieces, but simply for honest straightforward jobs.

* Thoughts: a, the narrowing is a good thing at a town entry.

b. mirrors if needed.
c. narrower footpath if needed as it is the edge of town.
d. South Brink is a through Trunk road. A.47;
this is useless as a long term principle because all Wisheeh would have to be rebuilt to make it fast (and dangerous). Therefore, plan for an A.47) pass S. and E. of Wisbeeh (much of it exists already) and leave the centre alone.











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SKILL

SUSPENDED CEILINGS PART I

by Peter Matthews

The suspended ceiling is by now an all-too-familiar commonplace of modern building technique; yet, though it has attracted much mechanical ingenuity, it has attracted rather less serious visual attention. As a first assault on this subject our author, Peter Matthews, describes the products available for constructing the basic, opaque, unheated ceiling, or, at least, those which he was able to find at the time of going to press. In the September issue he will discuss lighting and heating in the ceiling.

The object of a suspended ceiling is to reduce the height of an existing room, to conceal unsightly or complex structure, to permit the instal-lation of services in the space lation of services in the space above, or to give acoustic control. The adjective 'acoustic' has been loosely applied by many manu-facturers to products which absorb sound, though it might be equally well applied to those which reflect sound, provided they are used as sound reflectors to obtain an acoustic

Wet construction of plaster on some form of lathing still has its uses, and there has been a steady developand there has been a steady develop-ment of suspension systems for prefabricated panel ceilings. Modular light fittings have been introduced to fit into the panel grids and more recently a number of fully illuminated ceiling systems have come on to the market, which together with heated ceilings, will be dealt with in a future article. Anyone intending to select a article. Anyone including to suspended ceiling system would be well advised to examine the 'Code of Practice and Manual for Light-Weight Metal Fixing Systems' issued by the Metal Fixing Association, 32 Queen Anne Street, London, W1. Although only a few of the manufacturers named in this article are members of the Association, the best of them certainly maintain the

standards set by the code of practice.

The various suspended ceiling systems have been divided up into

- the following sections:

 1. Jointless ceilings
 - Modular panel ceilings.
 (a) Fibreboard.

 - (b) Ashestos products.(c) Metal trays.
- (d) Plaster products.(e) Mineral wool and cork tiles.

1. Jointless suspended ceilings

Proprietary plaster lathes may well be the choice in cases where the shape of a ceiling is irregular in plan, curved in section or where no joints are required. Whilst it is quite possible to use ordinary expanded netal lathing or clay lath for this purpose, both require fixings at relatively close centres which make them rather more suitable for direct application to the underside of joists. 'Ribmet,' 'Riblath' and 'Hyrib' are capable of spanning in o direction which results in a simplification of the suspension system.

Three coats of sanded plaster give

Three coats of sanded plaster give a fire rating of half an hour whilst the acoustic properties will vary according to the type of plaster which is specified. Ordinary sanded plasters weigh between 9 lb, and 12 lb. per square foot per inch of thickness, to which must be added the weight of lathing and supports; but if light-weight plasters such as Carlite are used, spans rather larger than the maximum shown in the adjoining table may be possible. As these ceilings are obviously not demountable, access panels must be provided

where necessary.

The cost of these systems is extremely difficult to compute because it is substantially affected by choice of the suspension members which cover an extremely wide range of possible sections and spacings. The cost of suspension alone will normally work out at between 14s. and 30s. per yard super; but to this must be added the cost of plaster, which might be expected to work out at 7s. 2d. per yard super in the outer London area.

2. Modular panel ceilings

There are several factors, apart from cost, which may influence the choice of a prefabricated panel suspended ceiling. Metal trays, plas-ter and asbestos products are not combustible but fibreboard tiles are potentially dangerous flame spreaders unless they are specially treated at an extra cost of approximately 2s. 6d. per square yard for plain tiles and 6s. per square yard for perforated tiles, in order to pass a Class 1 Spread of Flame Test.

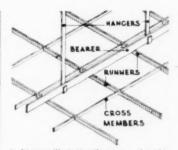


 Diagram illustrating the terms used in this article. Note that the word 'bearer' is used to denote a primary member introduced to increase the span between langers in some of the systems. The word runner is applied to members which are in direct contact, or integral with the ceiling itself. Some systems incorporate cross mem-bers to strengthen the ceiling between runners.

If the object is to protect the structure above from fire then one of the asbestos products would be the answer and in conditions of heavy or intermittent condensation special or intermittent condensation special care in selection is necessary to avoid corrosion (of metalwork) or even failure of the eciling panels which might occur with some types of plaster product. There are very few firms who produce a suspended ceiling which is efficiently sealed at the joints and perhaps the best in this respect and perhaps the best in this respect,

type	size of sheets	weight	maximum runner spacing	maximum bearer spacing	recommended hanger spacing	hangers	fire rating
·BB*	9 ft. by 2 ft., other sizes would be specials	21 to 37 lb, per sq. yd, dependent on gauge and mesh	12 in, to 16 in, dependent on gauge and mesh	dependent on section of runners. normally 2 ft. to 8 ft.	dependent on section of bearers normally up to 8 ft.		
'Expamet'	8 ft. by 2 ft. 3 in. 7 ft. by 2 ft. 6 ft. by 2 ft. other sizes would be specials	3½ to 5 lb. per sq. yd. dependent on gauge and mesh	14 in, to 18 in, dependent on gauge and mesh	ditto	ditto	1 in. by ½ in. m.s. flat will support 25 sq. ft. or ¼ in. diam. m.s. rod will	½ hour with normal sanded plaster in three coats
Riblath'	8 ft. by 2 ft. 3 in.	4.33 lb. per sq. yd.	integral	2 ft.	ditto	support 16 sq. ft.	
Ribmet*	9 ft. by 2 ft.	6] to 9] lb. per sq. yd. dependent on gauge	integral	3 ft. to 5 ft. dependent on width and gauge of ribs	ditto		

SCAFFOLDING OF GREAT BRITAIN LTD. The wire grid of this Dutch lath is linked by clay crosses and the finished mesh must be tensioned into position with a special 'rake,' \(\frac{1}{6}\) in galvanized rods must then be fixed at 15 in. centres under the lath, a procedure which seems rather complex: (Manufacturers: -N.V. Centraal Verkoop-en Exploitatiekantoor der Nederlandse Steengaasfabricken, Ceves, Plompetorengracht 14-16, Utrecht, Holland.)

type	size of sheets	weight	weight maximum runner spacing		recommended hanger spacing	hangers	fire rating
clay lath	6 yds. by 1½ yds.	the clay crosses reduce the weight of plaster required	18 in.	2 ft. to 8 ft.	4 ft. centres	‡ in. diam. m.s. rod (galvanized)	l hour with normal sanded plaster in three coats

GYPROC PRODUCTS LTD. The Plaxstele ceiling consists of plaster on suspended plasterboard lath and when this is backed with aluminium foil and finished with Gyplite the thermal insulation is quite high (0.24) B.T. L. sq. ft. hr. 1 F).

The minimum thickness including bearers would be 21 in, overall. Based on a minimum area of 500 sq. yds, the cost of the suspension grid (supplied only) is approximately 15s. sq. yd. The same area would be supplied and fixed complete with plastering for approximately 38s. to 48s. per sq. yd.

type	size of sheets	weight	Plaxstele loop channel runners	channel bearers	normal hanger spacing	hangers	fire rating
'Planstele'	3 ft. by 1 ft. 5 g in. by g in.	85 lb. per sq. yd. complete with plastered finish	18 in. centres with reinforcing rods at 18 in. centres in the opposite direction	3 ft. centres	5 ft. centres	m.s. flats	1 hr. plastered with Paristone 2 hrs. plastered with Gyplite
THE TRUSS	SED CONCRETE STE	EEL CO.					
type	size of sheets	weight	maximum runner spacing	maximum bearer spacing	recommended hanger spacing	hangers	fire rating
24 G Hy-rib	6 ft. to 13 ft. (in 1 ft. increments) by 10½ in.	approx. 90 lb. per sq. yd. inel. Hy-rib, steel flats, hangers and plaster	integral ribs $\frac{13}{13}$ in. deep at $3\frac{1}{2}$ in. centres	1] in. by [in. at 5 ft. centres	5 ft. centres	m.s. straps or rods	retarded hemi- hydrate gypsum plaster on Hy-rib (code of practice CP 211 (1949)) has given protection for over four hours
26 G Hy-rib	6 ft. to 16 ft. (in 1 ft. increments) by 101 in.	ditto above	ditto above	1 in. by in. at 4 ft. 1 in. by in. at 4 ft. centres	5 ft. centres 4 ft. centres	ditto	ditto
28 G Hy-rib	6 ft. to 9 ft. (in 1 ft. increments) by 10½ in.	ditto above	ditto above	1\(\frac{1}{4}\) in, by \(\frac{1}{4}\) in, at 3 ft. 1 in, by \(\frac{1}{4}\) in, at 3 ft. 2 in, by \(\frac{1}{6}\) in, at 3 ft. centres	5 ft. centres 4 ft. centres 3 ft. centres	ditto	ditto
Hy-rib athing	7 ft. 8 in. and 8 ft. 2 in. by 1 ft. 6 in.	ditto above	integral ribs $\frac{1}{4}$ in. deep at $4\frac{1}{2}$ in. centres	 in. rods at 2 ft. in. by 3 in. at 2 ft. if. by 3 in. at 2 ft. if. by 3 in. at 2 ft. 	2 ft. centres 3 ft. centres 4 ft. centres	ditto	ditta

of those considered here, would be the Cullum system, and 'Supacoust' with joints pointed, or Asbestolux finished with a special 'Tretol' spray. Where services are installed above

Where services are installed above the eciling, demountability may influence the choice, whilst the joints will consist of visible cover strips or chamfered edges to give a 'V' joint. As for pattern, texture and varia-tions of plane, there has been little

imagination at work and it is really astonishing that there should be so many systems available 'different if only in minor detail.' Ingenuity for the most part lies buried behind an essentially familiar façade of peg holes and chamfered edges.

Preparation of a ceiling plan is advisable so that the joints, edges and lighting points may be arranged in an orderly manner. Slight inaccuracies in fixing make the use of flexible conduit desirable where light-

nextine conduit destraine where ight-ing positions must be precise.

Although it is perfectly possible to use this type of ceiling where the plan is not rectangular (and indeed it is often done), the effect is usually rather unfortunate.

rather unfortunate.

Reverberation absorption coefficients are in most cases substantiated by tests carried out by the National Physical Laboratory but although some firms give a complete analysis many confine themselves to the absorption coefficient at 500 cycles per second and this is therefore the figure given throughout this article. This figure is admittedly not enough since it ignores the high and low frequencies where the products vary in performance considerably.

The diagrams which follow are all taken through 'runners' and whilst they are all reproduced to the same

relative scale they are only intended relative scale they are only intended as a guide to the appearance of the joints and where possible the usual wall trim detail. At the same time they do give an indication of the suspension system in one direction only. Where it has been possible to give approximate prices for supplying and fixing, these are based on 500 square yards in the London area.

5 ft. centres

(a) Fibreboard tiles

1 in. by 1 in. at

Apart from considerations of flame spread mentioned above, the sound absorption will vary with the quality of the tile and its surface treatment. Painting of plain fibreboard tiles may well kill their effectiveness in this respect, whilst with the various types of perforated or incised tile care should be taken not to clog

the perforations with paint.

Though many of these systems

may be simply installed on battens (mounted on the structural soffit) or fixed direct, this article only deals with fully suspended ceilings.

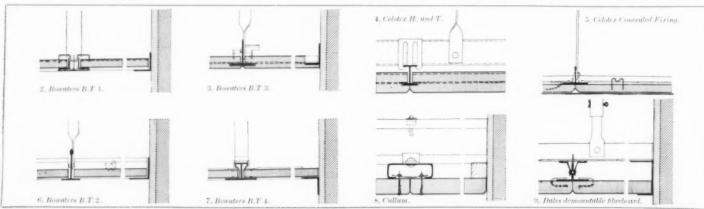
(b) Asbestos products for suspended ceilings

Asbestos products have the advantage that they are non-com-bustible, dimensionally stable, and suitable for conditions of fluctuating humidity when they will absorb condensation and release the moisture to the atmosphere by re-evaporation, under more favourable conditions. When perforated and backed by an absorbent pad they can absorb sound quite effectively.

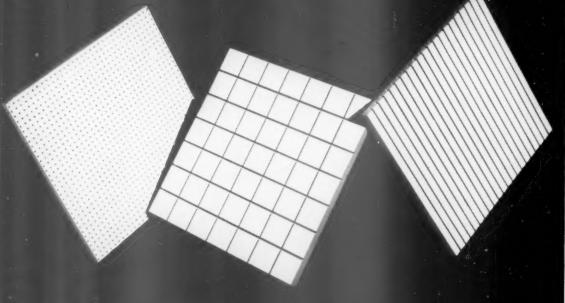
The use of the low density boards

for fire protection has become quite common but it should be remembered that recessed light fittings can constitute a problem in this respect.

[continued on page 61



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BOWATERS SALES CO. LTD. Types B.T.1. 2, and 4 are suspension systems using Boxcater standard $\frac{1}{2}$ in, insulation board and are not intended for sound absorption.

Type B.T.3 uses special $\frac{\pi}{4}$ in insulation board which may be perforated to give a reverberation absorption coefficient of 0.50 for a pitch of 512 c s.

system	weight	thickness of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
B.T.1	9 lb. per sq. yd.	½ in.	2 ft. by 6 ft. to 10 ft.	5 ft. 6 in. maximum by 2 ft.	visible M.S. cover strip in both directions	visible cover strip fixed to wall	no	materials only 12s. per sq. yd.
B.T.2	9 lb, per sq. yd.	in.	2 ft. by 6 ft. to 10 ft.	aluminium 'T' up to 13 ft. max. Sherardized steel up to 12 ft. max. by 2 ft.	visible cover strip in both directions	visible cover strip fixed to wall	no	supply and fix (excluding scaffolding) 19s. to 21s. per sq. yd.
B.T.3	14 to 15 lb, per sq. yd.	į m.	2 ft. by 2 ft.	11 ft. maximum by 2 ft.	secretly fixed 'V' joint	secret M.S.	no	materials only 27s, per sq. yd. supply and fix 35s, to 40s, per sq. yd.
B.T.4	9 lb. per sq. yd.	į iu.	2 ft. by 6 ft. to 10 ft.	6 ft, maximum by 2 ft.	visible cover strip in both directions	visible aluminium angle plugged to wall	Bo	as B.T.1 and 2

CELOTEX LTD. The 'Convealed Fixing System' is suitable for suspended ceilings and is normally fitted with plain \(\frac{1}{2}\) in insulation board but \(\frac{1}{2}\) in perforated insulation board panels will give a reverberation absorption cuefficient of 0.40 at 500 c.s.

The main virtues of the 'H and T' system, which is quite a recent introduction.

are its lightness and speed of crection (the manufacturers claim a reduction of some 15 per cent in labour costs over most similar systems) though it is not demountable. The reverberation absorption coefficient for the $\frac{1}{4}$ in. it is 0.85 at 500 c s. These thes may be obtained with a white 'Highlight' finish, and may also be treated against flame spread.

system	weight	thickness of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
H and T	9½ to 17½ lb. per sq. yd.	13 in. or 1 in.	12 in, by 12 in, 12 in, by 24 in, 24 in, by 24 in,	1 ft. centres in both directions	'V' joint secret fixing	no standard detail	no, access panels can be incorporated	unfixed from 3s, 9d, to 6s, 11d, per sq, yd, plus tiles
concealed fixing system	9 lb. per sq. yd.	₫ in.	normally 24 in. by 24 in.	dependent on size of T runner required	'V' joint secret fixing	no standard detail	no	unfixed complete with tiles 18s. per sq. yd.

CULLUM CHANNEL FIXING SYSTEM FOR ACOUSTI CELOTEX TILES This fixing and suspension system is specifically intended for Acousti Celotex tiles which are growed to take metal tongues in the cross joints: when the tiles are screwed to the spring fixing plates (the screws are cadmium plated) an airtight ceiling results which will not be stained by breathing at the joints. The prices quoted cover various sizes of tile and runner sparing and although they may seem rather high in comparison with some of the other systems there is no doubt that this is a high quality design and one of the few which give a really sound airtight construction together with convenient demountability.

system	weight	thickness of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
channel fixing system	18 lb. or 201 lb. per sq. yd.		12 in, by 24 in, or 24 in, by 24 in.	5 ft. 6 in, to 6 ft. 6 in, centres by tile width	V joint with visible flush fixing screw in each corner of each tile	standard steel channel bearer plugged to wall	yes	ii in., 40s. to 45s. sq. yd., 1½ in., 45s. to 50s. sq. yd. both prices supply and fix

JOHN DALE LTD. The Demountable Fibreboard and Fibre Acoustic system offered by this firm uses the same type of spring clip as the

metal tray systems described later. The χ in, tiles give a reverberation absorption coefficient of 0.65 at a frequency of 500 c/s.

system	weight	thickness of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
demount- able fibre- board or fibre acoustic	‡ in. panel and frame 11‡ lb. sq. yd. ‡ in. panel (exc. frame) 13‡ lb. sq. yd. suspension system extra	in. or	normally 4 ft. by 2 ft. with 'V' groove to give the appearance of two 2 ft. by 2 ft. tiles	4 ft. centres (adjustable in length) by 2 ft.	'V' joint secretly fixed	wall mounted channel showing 1 in. visible cover strip	yes, dimpled angles stapled to the back of panels clip into the steel spring 'T' runners	supply and fix in London area, fibreboard 30s, sq. yd, fibre acoustic 38s, sq. yd.

TENTEST FIBRE BOARD CO. LTD. Since the panels are simply screwed to the channel runners, the runner and hunger spacing may be adjusted to suit many types and thicknesses of panel such as:

§ in.insulating board: 1 in. Rabbit Warren panels and tiles; § in., § in., and § in.

Acoustic tiles; \(\frac{1}{2}\) in. Perforated Asbestolux; \(\frac{1}{2}\) in. and \(\frac{1}{2}\) in. plain Asbestolux. In addition this firm produces a number of other suspension systems consisting of inverted 'T' runners, showing a visible cover strip in steel or aluminium and intended for thermal insulation.

system	weight	thickness of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
A.M.F. (adjust- able metal fixing)	11 lb. sq. yd. complete with lin. insulation board	₫ in.	4 ft. wide	8 ft. 3 in. centres (6 ft. centres if plastered) by 4 ft.	'V' joint (heads of self tapping fixing screws are visible on face)	secret timber batten plugged to wall	yes, by removing fixing screws	35s. per sq. yd. supplied and fixed but depends on size of panel, etc.

HERMESEAL ACOUSTICS LTD. Hermescal Acoustics Ltd. sell prepared sound absorbent tiles manufactured of Swiss pressed wood-fibre. The suspension system described is the normal one and is largely made up of softwood battens. The rather curious board sizes given are brought about by metric dimensions (i.e. \{\frac{1}{2}\) in. by 1 ft. 7 \{\frac{1}{2}\}\) in. by 1 ft. 7 \{\frac{1}{2}\}\) in. 24 mm. by

 $50~cm, by \, 50~cm.$). The tiles offered are of 3 main designs, 'Perforated' (bevelled edges), 'Rilled' (bevelled or square edges), and 'Chequered' (bevelled edges). I plain panel 8 ft. $2\frac{\pi}{10}$ in, by 3 ft. $11\frac{1}{4}$ in, by $\frac{1}{8}$ in, is also available. The reverberation absorption coefficient at 500~c~s is 0.50 for both Rilled and Perforated panels and may be treated to give Class 1 spread of flame,

system	weight	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost per sq. yd.
usual system	tiles only \(\) in. = 13\{\} lb. sq. yd. 2 in. = 7\{\} lb. sq. yd. \(\) in. = 6\{\} lb. sq. yd.	8 ft. 2 ii in, by 1 ft. 7 ll in.	If it, centres by tile widths	square or 'V' joint invisibly stapled or visibly serewed to runners	secret wall mounted batten	yes (where tiles are serewed)	up to 111 sq. yds. supply only tiles (plus carriage) perforated {\(\psi\) in., 28s. 6d. \$\(\frac{1}{2}\) in., 21s. rilled {\(\psi\) in., 23s. 3d. chequered {\(\psi\) in., 33s. 9d.

JACKSONS (EDGEFOLD) LTD. 'Gorilla' Holdtite is a demountable clipping system and the clips could be fitted to most kinds of tile including chip-board, fibreboard or plasterboard. On this choice will depend the visual and physical characteristics of the ceiling. It should be pointed out that the zinc plated clips are fitted to two sides only, the remaining two sides being unsupported bull joints. The chosen tiles should therefore not be subject to sag,

system	weight	of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
'Gorilla' Holdtite	choice o	of panel is ve	ry wide	4 ft. maximum by tile width	Tiles span between battens with butt joints	no special detail	yes	normal cost of supply and fix 27s. 6d. to 37s. 6d per sq. yd. dependent on type of board

'Transite Acoustical Panels' are \(\) in. by 11\(\) in. by 11\(\) in. perforated asbestos cement tiles backed with a 1-in. absorbent pad which are supplied and fixed by John Dale Ltd. (who claim a reverberation absorption coefficient of approximately 0.94 at 500 c/s.).

There are runners but no cross members so that there are no cover strips behind the cross joints. The tiles are face fixed with escutcheon pins or serews through the corner perforations. When screws are used the tiles are of course demountable. Edges may be square or chamfered.

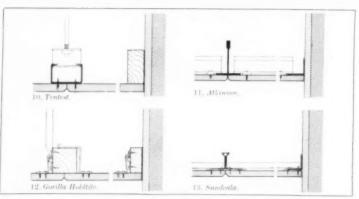
Assuming an area of at least 500 square yards the approximate cost of supplying and fixing would be 37s, per square yard.

(c) Metal trays

All the metal tray suspended ceilings which are considered here

employ what is essentially the same demountable fixing system originally developed in the United States (the patent has expired). Once one panel has been removed (and this might call for the use of a small ice pick or something similar) the remaining tiles may be unclipped very easily for access to services . . . (perhaps even too easily; examples have been seen which were firmly attached on one side only). It is regrettable that a mock 'V' joint has been introduced in some cases to simulate two 1 ft. by 1 ft. tiles in a 2 ft. by 1 ft. tray as this feature may strengthen the tile but it has none of the defini-tion of an actual joint; and why not a rectangular tile for a change? These trays have been criticized

because of unsightly corrosion which has occurred in restaurants and premises where there is considerable condensation. Aluminium is used for



the travs of one system where this problem does not arise (but whilst they are incombustible it might be

argued that they are less satisfactory from a fire resistance point of view) If steel trays are used it is important

[continued on page 63

ASBESTOS INSULATION BOARD Turners Asbestos Cement Co. Ltd. ASBESTOS INSULATION BOARD Turners Asbestos Cement Co. Ltd. supply Turnall' Asbestos Insulation Board which has a density of 50 th. per cu. ft. (Normal asbestos cement weighs from 120 to 140 lb. per cu. ft.) It is \{ in. \} in. or \{ in. thick and is obtainable in lengths of \{ ft. to 10 ft. (in 1 ft. increments) by \(2 ft. \) or \{ ft. wide. It has quite a pleasant natural grey finish and the \{ in. board with a \{ in. airspace behind will give a reverberation absorption coefficient of 0.15 at 500 c s. This board is however made up into plain or perforated 'Asbestos vement ceiling panels' of the same thicknesses and normally \(2 ft. \) by \(2 ft. \) (but up to \{ ft. \) by \(4 ft. \) with plain or chamfered edges. The thicker the board the better the fire protection so that a $\frac{1}{2}$ in, thick panel backed by 1 in, of Fibreglass mat will give 2 hours fire protection. There is no special system of suspension although swivel clips may be supplied

There is no special system of suspension although soived clips may be supplied for fixing at 12 in, centres of support.

The cost of plain panels 2 ft. by 2 ft. (supplied only) is as follows:

\[\begin{array}{l} in, \ldots -5s, 5d, per panel \\ \begin{array}{l} in, \ldots -5s, 8d, per panel \\ \begin{array}{l} in, \ldots -6s, 7\begin{array}{l} d, per panel \\ \end{array} \]

The Alkinson and Sandeala suspension systems both of which are suitable for use with Turnall panels are detailed here.

system	weight	thickness of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
reinforced	l in.—18 lb. per sq. yd. l in.—21 lb. per sq. yd. (tiles and suspension)	in. or	2 ft. by 2 ft. or 4 ft. by 4 ft.	2 ft. or 4 ft. by 4 ft. to 12 ft. centres	V joint. Secret aluminium T's screwed to back of panels and cut to fit over main T' runners	Secret aluminium angle plugged to wall. Recessed screw fixing of edge panels on one side of the room only	yes	35s, per sq. yd. (assuming 12 in. suspension)
lixed	in. 17 lb. per sq. yd. in. 20 lb. per sq. yd. (tiles and suspension)	in. or in.	ditto as above	2 ft. by 4 ft. to 12 ft. centres	'V' joint. Secret metal clips screwed to rear of tiles	secret aluminium angle plugged to wall	ho	33s. per sq. yd. (assuming 12 in. suspension)



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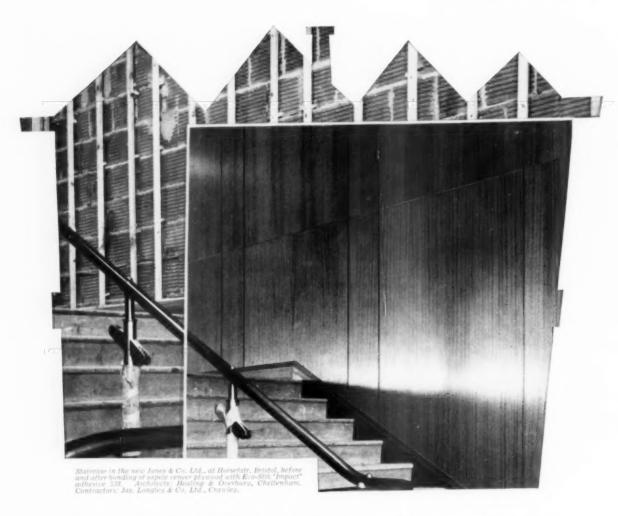


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xcii

THE SUNDEALA CONCEALED FIXING SYSTEM thickness of board wall trim demountable system weight size of board hanger spacing type of joint approx. cost 17 lb. per sq. yd. complete with angle plugged no to wall at 2 ft. centres supply and fix 500 2 ft, by up to 'V' joint secret 2 ft. by 2 ft. Sundeala sq. yds. 37s. per sq. yd. (materials only fixing (metal clips surewed to back of each panel 12 per not normally supplied) panel)

CAPE BUILDING PRODUCTS LTD. Asbestolux is included under 'asbes-CAPE BUILDING PRODUCTS LTD. Asbestolux is included under asbestos insulation board because its density is similar at 48 lb. per cubic foot. When fitted to a steel suspension system it can give up to 4 hours fire protection, and up to 2 hours fire resistance can be given when fixing to timber, or when the panels are perforated and backed with a 1 in. Rocksil Mat. Slotted panels are also available for sound absorption.

Asbestolux panels are manufactured to tolerances of a nothing \(\frac{1}{2}\); in. and they may be stove enumelled or in situations which might suffer from extreme condensation on effective means maintain.

extreme condensation an effective porous paint such as 'Seculate' might

be used. These suggestions do not completely seal the ceiling but a method has been devised by Messrs. Tretol to spray a completely impervious screen over the entire surface of the ceiling (the panels being very accurately fitted). There is no doubt that this firm have been extremely enterprising in the development of Asbestolux and have even been experimenting with sprayed low voltage heating circuits on the face of their panels, an idea borrowed from the aircraft industry for de-icing wing tips, engine cowlings, etc. The cost of standard grade plain panels, supplied only, are identical to those quoted for Turnall Asbestos Insulation Board.

system	weight	thickness of board	size of board	hanger spacing	type of joint	wall trim	demountable	approx. cost
AS2 Modulux design suspended ceiling	48 lb. per eu. ft.	‡ in. and ‡ in. Ashesto- lux	2 ft, by 4 ft, 2 ft, by 3 ft, 4 in, 2 ft, by 3 ft, 2 ft, by 2 ft, 8 in, 2 ft, by 2 ft, 1 ft, 8 in, by 3 ft, 4 in.	2 ft. by from 6 ft. to 10 ft. centres depending on the gauge of T runners or bearers	V joint secretly fixed	secret steel angle plugged to wall	yes, plain panels only	eosts vary with quality and locality, etc., and could be anything from a good price of 25s, per sq. yd. to a moderate price of 35s, per sq. yd. (supplied and fixed)

to make sure that they are rust proofed after they have been per-forated and formed for this is one possible reason for past failures. Frenger ceilings are similar in character to those described here but are mainly intended for use with heated ceilings and will therefore be des-eribed in a future article.

(d) Plaster products

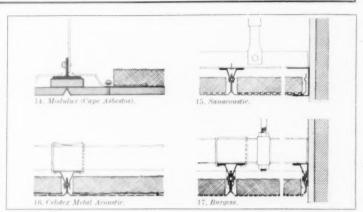
Fibrous plaster has often been used for suspended ecilings, especially where complex shapes are involved such as moulded acoustic sound reflectors and has usually been of a special' character. However, three firms are considered here who all produce plaster suspended ceiling panels which can be a useful feature when they are to marry up with traditional plaster finishes.

(c) Mineral Wool and Cork Tiles

The Armstrong Cork Company Ltd. introduced 'Travertone' and 'Cor-koustie' tiles some twelve months ago, although the parent company in the USA has bee i producing them

in the USA has bee i producing them for about twelve years.

Both tiles have a natural texture which arises from the nature of the material and in the case of 'Travertone' gives' it good sound absorption qualities (reverberation absorption coefficient 0.74 at a frequency of 500 c s and extremely good absorption in the high frequency range). The cost of these tiles (supply only) is 29s. 3d. per square yard. 'Corkoustie' tiles either plain or



CELOTEX LIMITED The prototype of this firm's metal acoustic tile was shown at the recent Building Exhibition and it has only just gone into production. The company aim to rustproof (Banderize) the tiles after

fabrication. It is the only example discussed in this article which is equipped with a continuous dimple on all four upstands to engage with the spring 'T' bars where necessary.

system	weight	size of tray	hanger spacing	type of joint	wall trim	approx. cost
Incombustible metal acoustic tile (steel)	17 lb. per sq. yd.	2 ft. by 1 ft. (with dividing groove simulating 2 tiles 1 ft. by 1 ft.)	dependent on choice of bearer	'V' joints (clean margins and distinct bevels)	no special treatment	33s. per sq. yd unfixed

BURGESS PRODUCTS LTD. These trays give a fire protection of 2 hours (B.S. No. 476: 1953). The reverberation absorption coefficient is 0.60 at 50 keV. Unperforated tiles are also available to vary the sound absorption, with our without insulating pads. The trays are fitted with two 'pips and stops' on the two fixing edges which clip into the 'T' runners, are zinc coated and finished

with one stoved coat of chromate primer and one stoved coat of matt off white finishing enamel. Although perforation and shaping take place after the steel sheets have been zine coated, the stowing enamel is applied by the 'Ransburg' system of electrostatic painting which is adequate protection for normal conditions. Special finishes are obtainable where heavy condensation is expected.

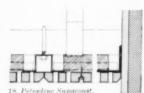
system	weight	size of tray	hanger spacing	type of joint	wall trim	approx. cost
Burgess suspended ceiling (24 gauge perforated mild steel)	with I in, absorbent pad of glass silk	3 ft. 4 in. by 1 ft. 8 in. (divided) 2 ft. by 2 ft. 1 ft. 6 in. by 1 ft. 6 in. 2 ft. by 2 ft. 2 ft. by 2 ft. (divided) 2 ft. by 9 in. 1 ft. by 1 ft. all tiles have 1½ in. upstand all round	direction (maximum)	'V' joint (trays are fabricated from per- forated sheet so per- forations run over bevelled edges and upstands)	exact module a special \(\frac{1}{2} \) spring T	cost of suspension 2 ft. deep, 7s. 6d per sq. yd. (unfixed) Cost of tiles varies from 19s. 1½d. to 30s. 4½d. per sq. yd according to quan- tity and size (un- fixed)

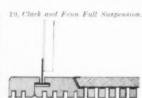
SHILL

JOHN DALE LTD. Sanacoustic rust-proof aluminium trays backed by 1 in. fibreglass or mineral wood absorbent will give a reverberation

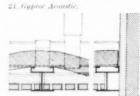
absorption coefficient of approx. 0.94 at 500 cs. Both perforated and plain trays are available which allow some variation in sound absorption.

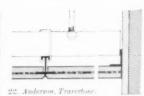
system	weight	size of tray	hanger spacing	type of joint	wall trim	approx. cost
Sanacoustic (22 gauge half-hard aluminium)	Each tray 1 lb. approx.	2 ft. by 1 ft. (with dividing groove simulating 2 tiles 1 ft. by 1 ft.) with 1\[\] in. upstand all round	4 ft. centres	V joints (clean un- perforated margins)	edge channel plugged to wall showing \hat{z} in, on the face	45s, 6d, per sq. yd, supplied and fixed (area about 500 sq. yd.)











PETRADENE LTD. Messrs. Petradene Ltd. produce a range of tiles suitable for suspended ceilings and made of plaster of Paris hardened by 'Superite' under the trade name of 'Supacoust,' which have a neatly 'tooled' finish. Specials may be quite easily produced and although the standard tiles have regular perforations, they are also produced with random below. random holes,

They are dimensionally stable, absorb condensation, are possibly unique in

that they may be scaled by pointing, and may contain some sisal chippings or even \(\mathbb{i}\) in galvanized reinforcing rods when required.

The fire rating is Class I and a reverberation absorption coefficient of 0.70 with glass fibre quilt backing and 0.60 with 1 in, wood wood backing is obtainable at 500 c s.

Although the table gives details of the metal suspension system the tiles may also be fixed to timber runners and beavers with metal strap hangers.

system	weight	thickness of tile	size of tile	hanger spacing	type of joint	wall trim	demountable	approx. cost
Supacoust	22 l lb, per sq. yd.	ĝ in.	2' by 2' 2' by 1' 8" 2' by 1' 6" 2' by 1' 2" 1' 8" by 1' 8" 1' 8" by 1' 4" 2' 6" by 1' 3"	1 in. by \(\frac{1}{4}\) in. M.S. straps at 4 ft. centres	V joint which may be pointed. Countersunk screw fixing	M.S. angle plugged to wall	yes, even when pointed by removing serews	supply only tiles natural white, 22s, 6d, sq. yd., off white, 20s, 3d, sq. yd.

CLARK & FENN LTD. These tiles are manufactured from gypsum, are non-combastible and should give a fire rating of at least half an hour. The tiles are of three types: plain 'Rapid,' perforated 'Echostop.'

and various patterns of moulded tile under the general trade name 'Dekora.' The 'Echostop' tiles give a reverberation absorption coefficient of 0.82 at 500 cs.

system	weight	thickness of tile	size of tile	recommended hanger spacing	type of joint	wall trim	demountable	approx. cost
full suspension	tiles only 31½ lb, per sq. yd.	l in. but with Il in. around edges	2 ft. by 2 ft.	2 ft. by 1 ft. to 7 ft. 6 in. centres	secretly fixed 'W joint	aluminium angle cover strip or may marry up to fibrous plaster surround	yes	'Echostop,' 45s, sq. yd. 'Bapid,' 40s, per sq. yd 'Dekora,' 45s, per sq. yd. supply and fix
minimum suspension	ditto above	ditto above	ditto above	2 ft. by 4 ft. centres (4 in. max. overall suspension)	ditto above	ditto above	ditto above	ditto above

GYPROC PRODUCTS LTD. This company make a point of mentioning that 'These ceilings shall not be creeted where damp conditions prevail or where they may be subjected, either intermittently or continuously, to a moist, humid atmosphere.' Acoustic Gyproc (perforated) backed with

1 in. bitumen-bonded fibreglass will give a reverberation absorption coefficient of 0.80 at 500 cs. This will improve to 0.85 with a 2 in. fibreglass mat. Only the first of the three systems analysed has been illustrated in section. They all rely on timber battens as reinforcing cross members.

system	weight	thickness of tile	size of tile	recommended hanger spacing	type of joint	wall trim	demountable	approx. cost
acoustic suspended ceiling	26 to 28 lb. per sq. yd.	₿ in.	4 ft. by 2 ft, and 4 ft. by 4 ft. perforated plasterboard tile	2 ft. or 4 ft. according to size of tile by 5 ft. to 12 ft. dependent on choice of bearer section	aluminium cover strip showing 1½ in. or ½ in.	visible aluminium angle plugged to wall	по	35s, to 45s, per sq. yd.
slotted acoustic tile suspended ceiling	ditto as above	₫ in.	2 ft. by 2 ft. with 1 in. by 1½ in. timber battens fastened to back at 10 in. centres forming panels 4 ft. by 2 ft.	4 ft. by 12 ft. centres	'V' joint secretly fixed	ditto above	no	45s. to 55s. per sq. yd.
plain bevelled edge tile suspended ceiling	ditto as above	į in.	2 ft. by 2 ft.	dependent on size of timber runner and channel bearer	'V' joint fixed with w's screws and cup washers	visible screw and cup washer into secret batten plugged to wall	yes	35s. to 40s, per sq. yd.



Architects C. C. Shaw, BARCH. 1 B.1.B.A., Borough Architect. Matthew Maybury, A.B.I.B.A., Deputy Borough Architect (now Borough Architect)

Contractors: Carlion Contractors Ltd.

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CON.

SILILI continued from page 64]

striated have much more modest sound absorption characteristics (0.32 or 0.39 at 500 c/s) but have a natural moisture resistance and are therefore suitable for conditions of high humidity such as kitchens or swimming pools, etc. They cost 31s. 6d. per square yard (supply only).

Summary

An appraisal of the details in this article leads to the following conclusions:

(i) Cast

The cheapest types of suspended

ceiling are either 1 in. fibre insulation board with visible cover strips (similar in character to a factory roof lining system) or patent lath and plaster, both of which—under favourable conditions—might be expected to cost about 21s, per square yard but neither would be ideal where much access was required to services. The more expensive ceilings must be examined on their relative merits, and may well have properties which would justify the extra cost.

(ii) Weight

Plaster ceilings are quite the

tic' tiles ma		CO. LTD. 'Travert wed and back cut for fically for 'Travertone			odular tile systems	here. (This firm s described in this of	
system	weight	size of board	recommended hanger spacing	type of joint	wall trim	demountable	approx. cost
for 'Traver- tone' tiles	approx. 14 lb. per sq. yd. complete	1 ft. by 1 ft. and 1 ft. by 2 ft.	5 ft. to 10 ft. centres by 5 ft.	butt or 'V' joint secretly fixed with 'Paxolin' tongues in cross joints	secret metal angle plugged to wall	no	63s. per sq. yd.

heaviest at 85 to 90 lb. per square yard complete with suspension, and plaster products in the modular tile range are also on the heavy side. Half-inch fibreboard ceilings are likely to weigh only 9 lb. per square yard complete and 1-in. perforated asbestos cement tiles (Transite) might be slightly lighter.

(iii) Sound absorption

It is debatable whether it might have been rather more useful to give an average reverberation absorption coefficient taken over the normal range of frequencies for general use but according to the details supplied by the manufacturers and usually substantiated by a National Physical Laboratory report, the types of ceiling which give the most effective sound absorption at high frequencies (i.e. 4,000 cycles per second) are

Armstrong's 'Travertone' (0.93), Burgess metal tray (0.80) and John Dales's 'Sanacoustic' metal tray and Demountable Fibre Acoustic (0.75).

At low frequency (i.e. 125 cycles per second) 'Travertone' again heads the list (0.63), although many other products are more efficient in the middle range. Clark and Fenn's 'Echostop' absorbs 0.50 and Gyproc acoustic board with a 2-in. absorbent mat has a coefficient of 0.40 at the same frequency. Many of the sound absorbant tiles now in use in this country were manufactured in the USA well before 1930 and now that patents have expired are appearing on the British market.

(iv) Thermal insulation

Many sound absorbent materials are also good heat insulators but

this aspect is mainly of interest when the ceiling is suspended beneath an uninsulated roof space and has, therefore, only been recorded where the material concerned is especially effective in this respect.

(v) Hanger spacing

It will be noticed that wherever there are primary and secondary structural members supporting a ceiling system, the bearers can usually be varied to permit large or small hanger spacing in one direction. This could be a useful feature where large trunking or other large services must be accommodated above.

(vi) Demountability

It may not always be vital to have universal demountability and there is usually a way of providing limited access in each example that has been classified as 'not demountable.' Some of the fully demountable tiles might well be suitable for temporary structures such as exhibitions.

(vii) Moisture resistance

'Corkoustie' cork tiles are the only ones which have the manufacturer's unqualified recommendation for conditions of heavy humidity. Some plasters and low density asbestos boards are quite good but call for extra treatment in severe conditions.

(viii) .1ppearance

The mineral wool and cork tiles are the only ones which exploit the quality of the ingredients to give an interesting texture. For the rest of the modular ceilings it is largely a matter of choosing the type of perforation or joint with the greatest appeal except in the case of the

[continued on page 68



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For old buildings



ALL SAINTS' CHURCH, HASTINGS by courtesy of the Rector and consultant Architec

% Water absorption after

Proof of the effectiveness of these treatments is shown in this table

AND DESCRIPTION OF THE PARTY.

10.5 (2.14 11.0.0)

		241	hours immersion
		Initial test	Retested after 3 years' natural weathering
	untreated	7.0	6-2
Sandstone	DRI-SIL treated	0.1	0-2
Cement	untreated	6.0	5-9
Block	DRI-SIL treated	0-4	0-7
Common	untreated	20-0	20-1
Brick	DRI-SIL treated	0-1	0.3

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(Dept DS1) Hemel Hempstead
Clutha Paint & Oil Co Ltd, Glasgow
Samuel Courtney Ltd, Belfast
John S. Craig & Co Ltd, Glasgow
W. David & Son Ltd, London, NI
Detel Products Ltd, South Ruishp
Stuart B. Dickens Ltd, London, SE7
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Nubold Development Ltd, Crawley Permoglaze Ltd, Birmingham Purimachos Ltd, Bristol 2 Revnolds Paint & Varnish Ltd, Liverpool Ribble Paints & Varnishes Ltd, Blackburn

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'Dekora' plaster tiles. One might have expected more adventurous products from this eminently mouldable material.

(ix) Size of panel

A module of 2 ft. by 2 ft. or 1 ft. by 1 ft. is almost universal amongst the dry constructions except where a product is cut down from a larger sheet such as low density asbestos cement board or where the product has metric dimensions such as Hermescal tiles.

Presumably these dimensions started with the economic subdivision of 8 ft. by 4 ft. sheets and this has now forced other products such as modular flush light fittings and tiles cast separately (i.e. plaster tiles) to follow the same dimensions which must annoy the 3 ft. 4 in. module boys. The low density asbestos cement board can be used up to 10 ft. by 4 ft. and even 3 ft. 4 in. by 1 ft. 8 in. though it would need intermediate reinforcement and in the very large sheetinght prove rather unmanageable.

(x) Fire

Most suspended ceiling finishes are either naturally capable of passing a Class I spread of flame test or can be treated to do so. Burgess metal trays have been tested by the Joint Fire Research Organization and have been proved to give effective protection to structural steelwork for a period of 2 hours.

Plaster eedings can give protection for 1 hour and Gyproc Plaxstele up to 2 hours. If the problem is to protect a light weight timber structure then probably low density asbestos cement is the answer which can be designed to give effective protection for up to 4 hours.

Manufacturers

1. Jointless ceilings: Gyproc Products Ltd., Singlewell Road, Gravesend, Kent; S.G.B. Ltd., Mitcham, Surrey; The Expanded Metal Co. Ltd., Burwood House, Caxton Street, S.W.1; Steel Bracketing & Lathing Ltd., a 8 Brigstock Parade, Thornton Heath, Surrey; The Trussed Concrete Steel Co. Ltd., Truscon House, Lower Marsh, S.E.I. 2 (a) Fibreboard: Bowater Sales Co. Ltd., Building Boards Division, Bowater House, Stratton Street, W.1; Celotex Ltd., North Circular Road, Stonebridge Park, N.W.10; Horace W. Cullum & Co. Ltd., 58 Highgate West Hill, N.6; John Dale Ltd., New Southgate, N.11; Hermescal Acoustics Ltd., 4 Park Lane, W.1. Jacksons (Edgelold) Ltd., 55 Duke Street, Fenton, Stoke-on-Trent; Tentest Fibre Board Co. Ltd., Fiboard House, Oakleigh Gardens, Whetstône, N.20, Universal Metal Furring & Lathing Co. Ltd., 175 Merton Road, S.W.19, 2 (b) Ishestos products: John Dale Ltd., New Southgate, N.11; Cape Building Products Ltd., Cowley Bridge Works, Uxbridge, Middx, Turners Asbestos Cement Co. Ltd., Trafford Park, Manchester, 17; Sundeala Board Co., Sunbury-on-Thames, Middx, 2 (c) Metal trays: Celotex Ltd., North Circular Road, Stonebridge Park, N.W.10; John Dale Ltd., New Southgate, N.11; Burgess Products Co. Ltd., P.O. Box 11, Hinckley, Leies, Frenger Ceilings Ltd., 7–12 Tavistock Square, W.C.1, 2 (d) Jeaustic perforated gypsum plaster tiles: Petradene Ltd., 7–8 Hobart Place, S.W.1; Gyproc Products Ltd., Singlewell Road, Gravesend, Kent; Clark & Fenn Ltd., 16 Old Town, S.W.4.

CONTRACTORS etc

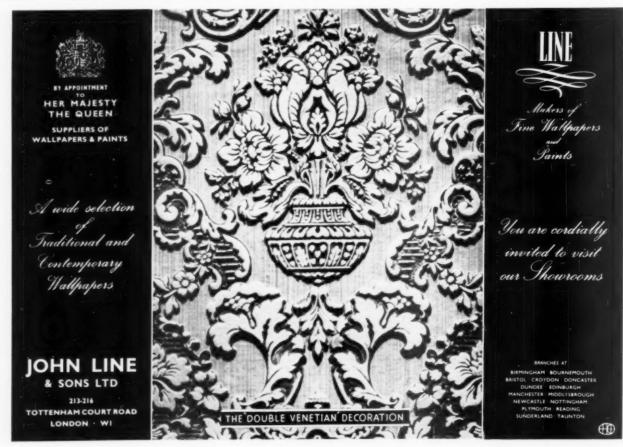
Gatwick Airport, Control Tower and Fire Station. Architects: Yorke, Rosenberg & Mardall. General contractor: Gilbert-Ash. Sul-sontractors: Electrical: T. Clarke & Co. Heating and ventilation: Edward Deane & Beal Ltd. Lifts: Titan Lift Co. Metal windows to control room: Aygee Ltd. Metal windows: Crittall Manufacturing Co. Structural steekwork: James Austin & Sons Ltd. Pneumatic tubes: Lamson Engineering Co. Flooring: Semtex Ltd. Roofing: D. Anderson & Son Ltd. Bilinds: Tidmarsh & Sons. Sliding doors: Hill Aldam & Co. Boller shutters: Haskins. Sanitary fittings: Stitson's Sanitary Fittings Ltd. Ironmongery: A. G. Roberts Ltd. Balustrading, etc.: S. W. Farmer & Son Ltd. Suspended ceilings: Tentest Fibreboard Co. Pre-cast concrete cills: Girlingstone. Paint: Serecton Paintmaker Ltd.

Gatwick Airport, Terminal Building. General contractor: Turriff Construction Corporation Ltd. Architects: Yorke, Rosenberg & Mardall. Subcontractors: Roofing specialists: D. Anderson & Son. Constructional steel: James Austin & Sons. Lifts; Bennie Lifts Ltd. Shop and bar fittings: Bath Cabinet Makers Ltd. Electricians: T. Clarke & Co. External and venetian blinds: Deans Blinds (Putney) Ltd. Floor tiling: Decorative Floors Ltd. Heating: Edward Deane & Beal Ltd. Asphalte tunking: Faldo Asphalte Co. Roller shutters: Haskins Ltd. Water tunks: Horseley Bridge & Thomas Piggott, Decorative glass: T. & W. Ide Ltd. Fabric

reinforcement: Tentor Bar Co. Transmission tubes and conveyors: Lamson Engineering Co. Special suspended ceilings: Luxfer Ltd. Terrazzo work: Malacarp Terrazzo Co. Scaffolding: Mills Scaffold. Metal windows: Mellowes Ltd. Special wall tiling: Maxwells (Hove) Ltd. Utile windows: Norbury Joinery Ltd. Plastering: Pollock Bros. (London) Ltd. Floor and wall tiling: W. G. Pateman Ltd. Suspended ceilings: Sundeala Board Co. Cold room equipment: Smith's Insulation Ltd. Plumbing: George E. Taylor & Co. (London). Metal windows: Aygee Ltd. Special partitions: Unilock Ltd. General glazing: Warner (Glass) Ltd. Kitchen equipment: Radiation Ltd.: Benham & Sons Ltd.; James Stott & Co.; EUK Catering Machinery Ltd.; The Regional Manufacturing Co.; Pressed Steel Co. Ironnongery: Alfred G. Roberts Ltd. Sanitary fittings: Stitsons Sanitary Fittings Ltd. Handraling and balustrading: Hotchkiss Engineers Ltd. Architectural aluminium work: Ajaz Architectural products Ltd. Public address system: Westrex Co. Paint: Screeton Paintmaker Ltd.

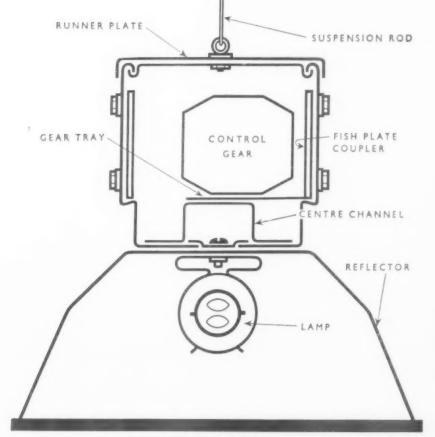
Belgrade Theatre, Coventry, General contractors: George Wimpey & Co. Sub-contractors: Structural steckcork: Boulton & Paul Ltd. Reinforced concrete. British Reinforced Concrete Co. Piling: Simplex Concrete Piles Ltd. Safety curtain: Hall Stage Equipment Ltd. Roller shutter: G. Brady & Co. Wood wood roofing: Halerete Precision Panels Ltd. Counterweights, paint bridge and TV platform: Gimson & Co. (Leicester) Ltd. Suspended ceiling: Steel Bracketing & Lathing Ltd. Sliding windows: P. G. Alldav & Co. Metal win lows and huystack luntern: Crittall Manu

[continued on page 70



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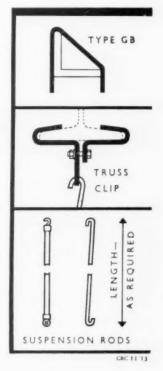
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Sub-contractors: Spiral staircase and structural steelwork: George Pauling Ltd. Heating and ventilation and gas services: J. Jeffreys & Co. Electrical installation: Troughton & Young (Lighting) Ltd. Automatic sprinkler installation: Automatic Sprinkler Co. Fibrous plaster ceiling and steelwork: David Esdaile & Co. Suspended aluminium sanacoustic criling: John Dale Ltd. Marble tile flooring: Jaconello Ltd. Mahogany handrail to staircase: F. J. Lewis Ltd. Surfacing to catchments: Extrardex Ltd. Plate plass doors and screens to fouer: J. Zinan Ltd. Plate glass window panels: London Sand Blast Decora-tive Glassworks Ltd. Folding grill: Rely-a-Bell Burglar & Fire Alarm Co. Felt roofing: Durable Asphalte Co. Steel reinforcement: British Reinforced Concrete Co. Expanded metal: The Expanded Metal Co. Joinery: W. H. Sons. Metallic asbestos British Belting & Asbestos Ltd. Iron-work: Epirus Co.; Metal Sections Ltd. Rolled steel channel: Rae Stage Equipment Ltd. Shelf fittings: Versa-tile Fittings (W.H.S.) Ltd. Maxaire multi-lunger scatillation panels: Green multi-lowre ventilation panels: Green-woods & Airvac Ventilating Co. Lighting fittings: Troughton & Young (Lighting) Ltd. Sliding doors gear: E. Hill Aldam & Co. Venetian blinds: J. Avery & Co. Projector and sound reproducer equipment for main and preview theatres: G. B. Kalee Ltd. preview theatres: G. B. Kalee Ltd. All-purpose lantern and rewind equip-ment: Robert Rigby Ltd. Screen frame, variable masking, curtain tracks, shatters, arclump ventilation system, stage plutform: G. B. Kalee Ltd. Sound amplification equipment for commentator's room, etc.: R.C.A. (Gt. Britain) Ltd. Continuous running conversation equipment: M. W. Duns-combe Ltd. Mild steel reinforcement: The Helical Bar & Engineering Co. Precast concrete: Qualerete Ltd. Durasteel doors and panels: Durasteel Ltd. Wood wood slabs: Halcrete (Precision)

Church at Hemel Hempstead. Architect: Archard & Partners. General contractors: William Lacey (Hounslow) Ltd. Sub-contractors: concrete: Kingsbury Concrete Ltd. Aluminium sheathing: Broderick Insulated Structures Ltd.; Northern Aluminium Co. Windows: James Gibbons Ltd. Acoustic ceilings: Thermal & Acousties Co.

Police Headquarters at Coventry. trehiteet: Arthur Ling, General Contractor: Gilbert Ash Ltd. Subcontractors and suppliers. Asphalt haking: Ragusa Asphalte Paving Co. Pavings and Marble: W. H. Fraley and Sons. Bricks: Blockleys Ltd. Concrete roof lights: Lenscrete table and chairs: table and chairs: Ltd. Conference Heals Contracts Ltd. Concrete floors: Helical Bar and Engineering Co. Cork and thermoplastic floors: Armstrong Cork Co.; Rowan and Boden Ltd. Domelights and metal windows: Monk Metal Window Co. Doors: Leaderflush Ltd. Entrance doors, screens and joinery: M. S. Bayliss Ltd.; Tarring Joinery Ltd. Expanded metal ceilings: Expanded Metal Co. Fans: Woods of Colchester. Glazing: Pearce and Cutler Ltd. Glazed wall finish: John Ellis and Sons. Hardwood block and strip flooring: Vigers Bros. Heaters: F. H. Biddle Ltd.; Copperad Ltd.; Elexaire Ltd. Heat-Weatherfoil Heating Systems Ironmongery: James Gibbons Ltd. Kitchen equipment: Radiation Ltd. Lighting fittings: General Electric Co.; Troughton and Young (Lighting) Ltd.; Falk Stadelman; B.T.H. Lifts: Waygood Otis Ltd. Mosaic flooring and terrazzo: Marbello and Durus Ltd. Oil burners: Quiet May (England) Ltd. Paints: Smith and Walton Ltd. Plywood veneers: Bakers of Wycombe Ltd. Reconstructed stone: Croft Granite, Briek and Concrete Co.; Naybro Stone Ltd.; Constone Ltd. Sanitary fittings: S. G. B. Dudley Ltd.; Adamsez Ltd. Shutter

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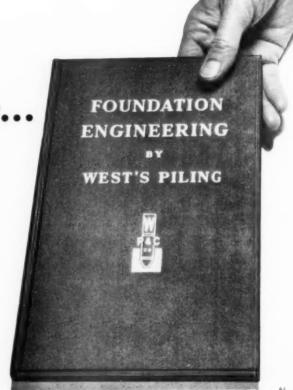
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- 1 Terrace houses at Gleadless Valley Estate, Sheffield Architect: J. L. Womersley, F.R.L.B.A., M.T.P.L., Sheffield City Architect.
- **2** A variation on the basic theme in which the individual dwellings are 'stepped' down the terrace.
- **3** First floor plan (above). Shaded area shows limit of skylight over bathroom and W.C. Ground floor plan below.

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- 2 Showrooms for Gowrings Ltd., Reading Architects: Lassetter & Judd, WARLINA.
 - 3 Henrys Stores, Stockport
- Architects Marsden, Massey & Arschavir, Chartered Architects
 - 4 Head Office and Warehouse for Greenwoods

Architects: Samuel Jackson & Son, 1/4/A.R.L.R.A. Quantity Surveyor: R. G. McCaffrey, F.R.L.C.S.





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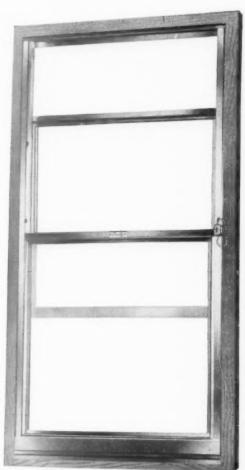
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3 ft o in. x 6 ft o in. high
or in sizes to suit special requirements.



IMPORTANT FEATURES

Adaptability

Can be inserted into timber frames, composite metal windows, pressed sub-frames, curtain walling.

Simple, Positive Control

A foolproof device ensures suspension in required position. Balance weights are incorporated in units over 2 ft 6 in. x 5 ft o in. high.

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Security

A device locks sliding sashes when in closed position.

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Ventilation at transom is obtained by speciallyarranged sliding ventilator.

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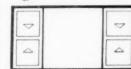












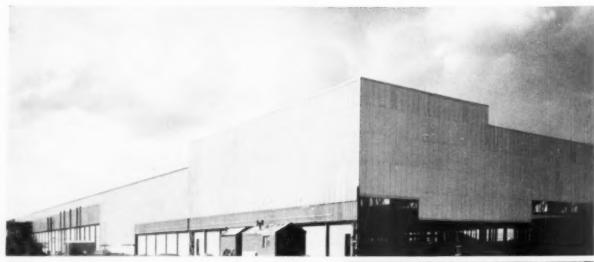
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- Top: Robertson Q-Panel, Type QSG, being erected at the Caterpillar Tractor Company, Tannochside. Architects: Wilson, Hamilton and Wilson, Glasgow.
 - Robertson Q-Panel, Type QF, at the Rover Company, Solihull. Consulting Engineer: Thomas Bedford, A.M.I.C.E. Architects: Hasker and Hall, London.
 - 3: Robertson Q-Panel at the new Spare Parts Depot for The Ford Motor Company Limited at Aveley, Essex Architects: E. R. Collister & Associates General Contractors: James Crosby & Sons Ltd.
 - Robertson Q-Panel, Type QF, at the British Thomson-Houston Works at Larne, Northern Ireland. Contractors: Holland & Hannen and Cubitts, Ltd.
 - 5 : Robertson Q-Panel, Type QF, at Metropolitan-Vickers Electrical Company, Manchester. Design by Metropolitan-Vickers Architects Department.

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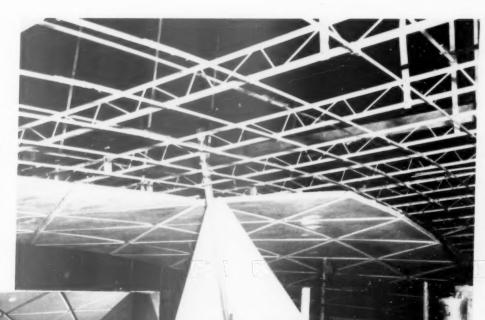


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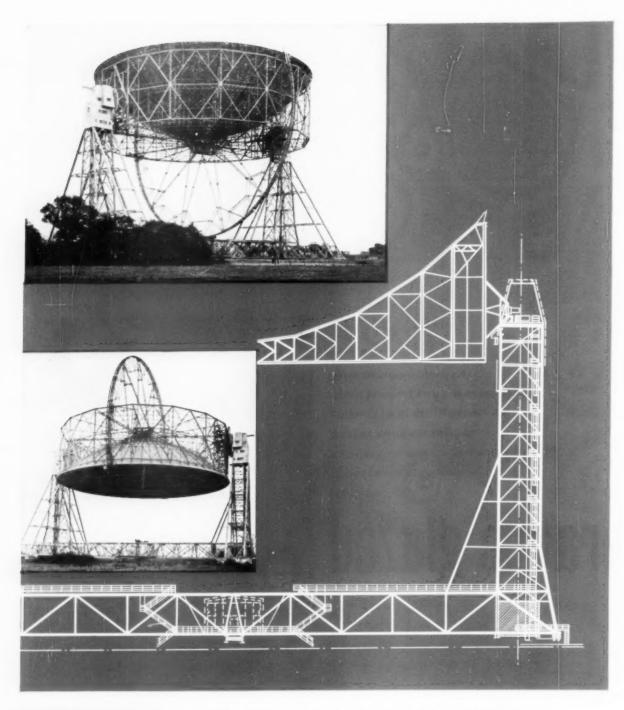
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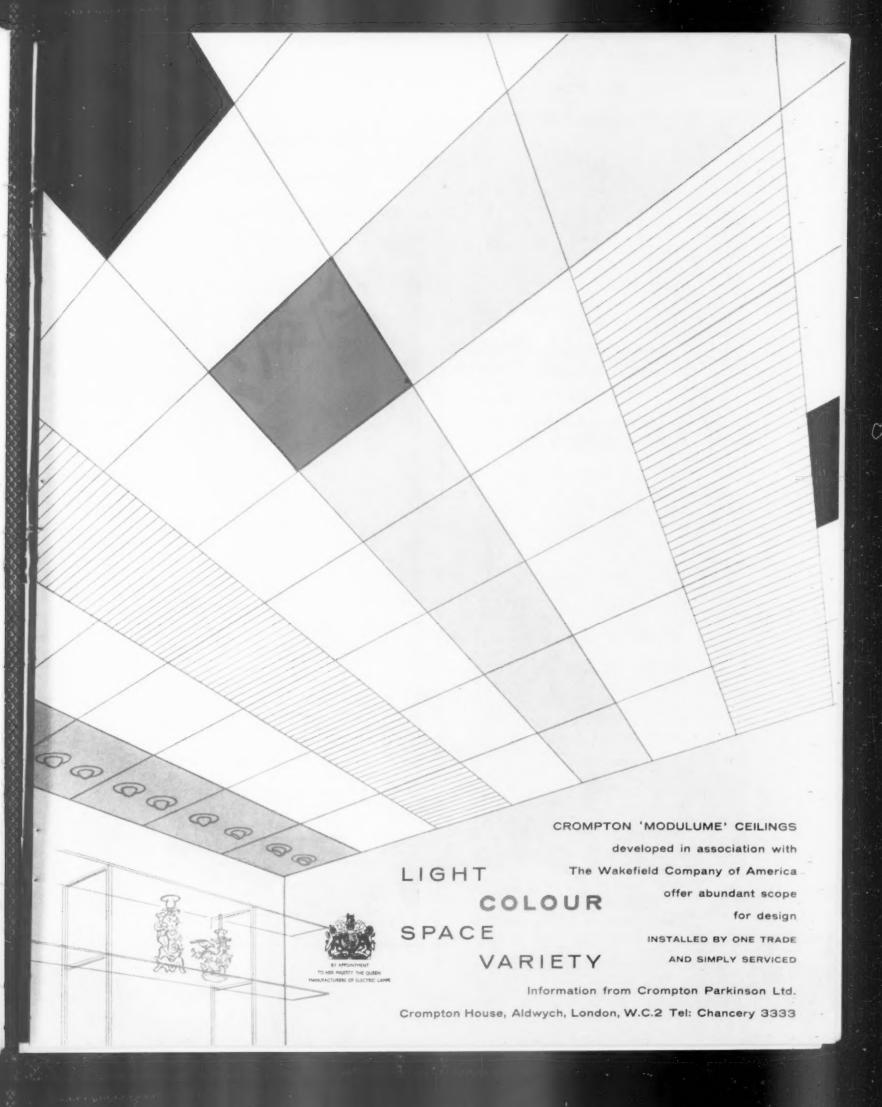
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The Chapel at Bonchamp. By le Corbusier. Architectural Press. Pp. 120. 25s.
"Never in my life have I explained a painting. The painting explained a painting. The painting will go out and will be loved or hated, understood or not." So says le Corbusier in his preface. Happly he does not apply the prohibition to buildings. Feople who have been inside the Ronchamp chapel always feel the wonder the architect strove for. Others, even lifelong Corbusier addicts, have felt disquiet. This book, written and designed by le Corbusier himself, shows with beautiful economy the long, silent process, the struggle, and the moments of certainty that produce a work of art, that between 1950 and 1955 produced this building. First the finished building is shown by photographs of the kind that need no captions. We see black nuns praying against a light-pierced wall, the distant rolling landscape, and on the opposite page the immediacy of the simple concrete. Later, interspersed among sketches, calculations, photographs of models, and some very fine architectural drawings. "Corb" lists the workmen's names, tells with

photographs of models, and some very fine architectural drawings, "Corb" lists the workmen's names, tells with inimitable brevity how a crab shell lying on his drawing board gave the idea for the concrete shell of the roof; how the massive walls were compiled from ruined stones; how when the foremen picked up the cross and carried it up the nave the workmen.

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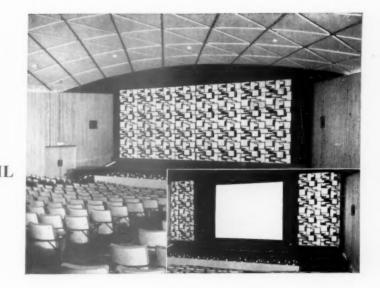
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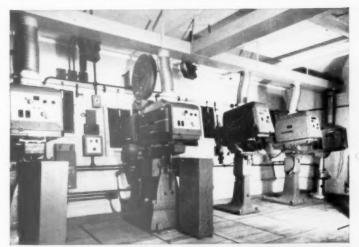


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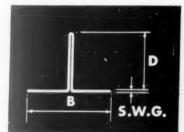
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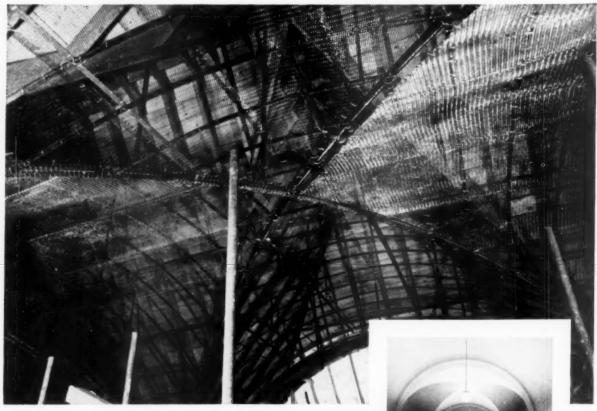
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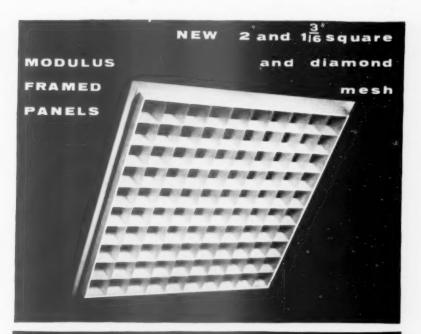
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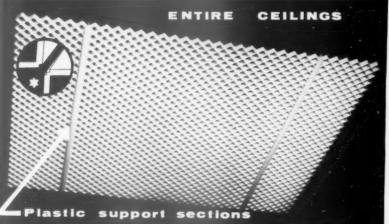
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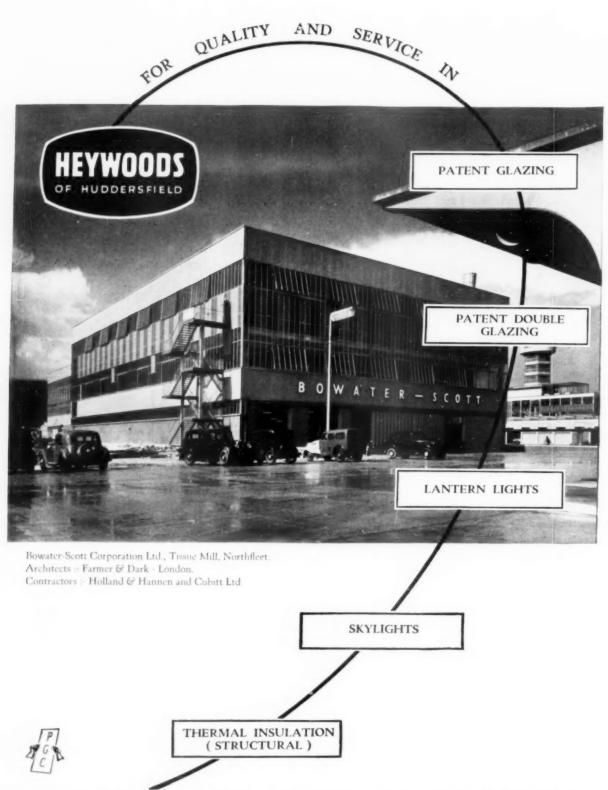


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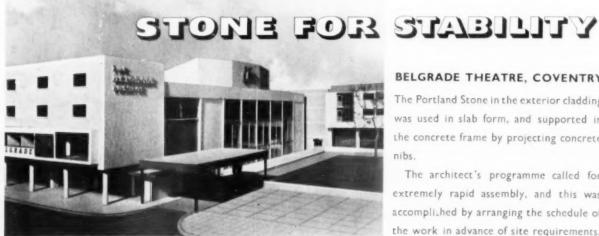
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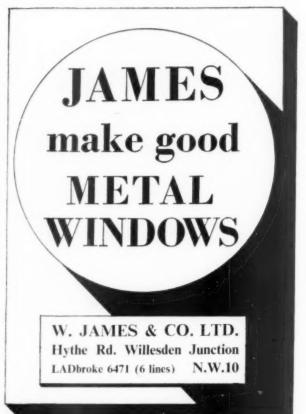
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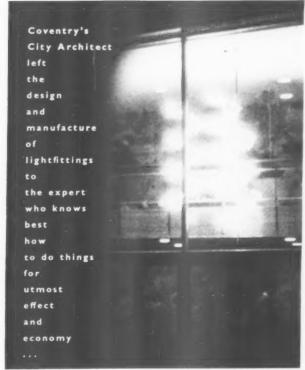
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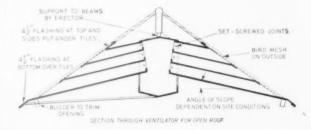
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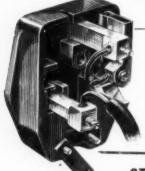
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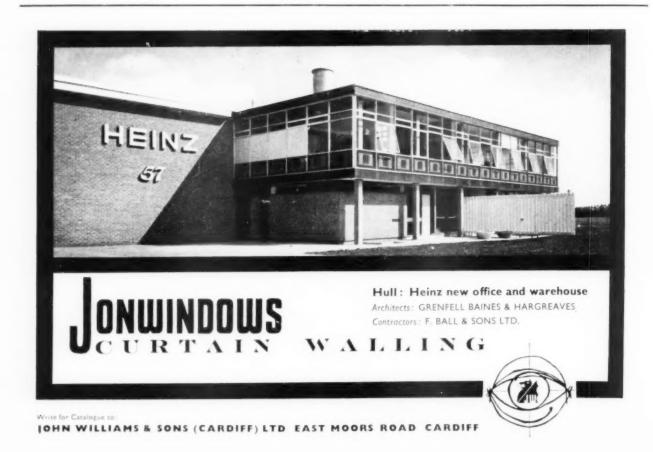
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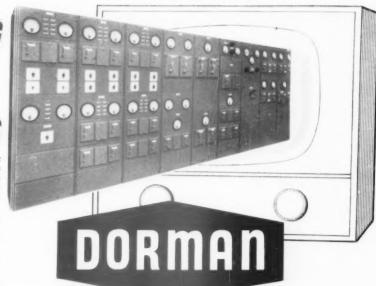
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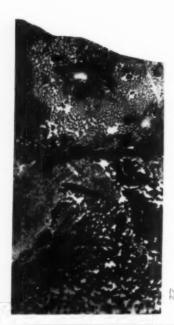
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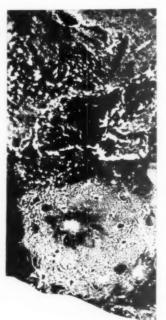
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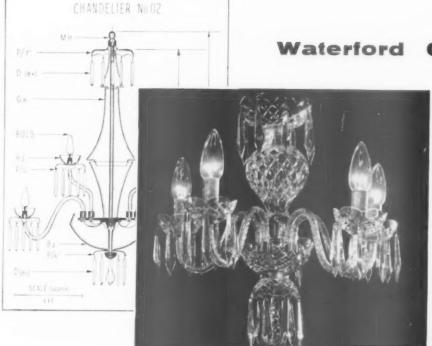
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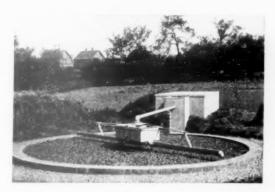
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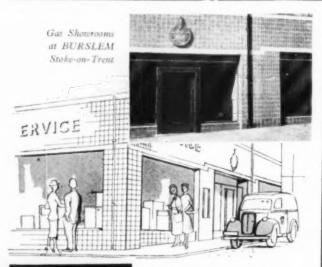
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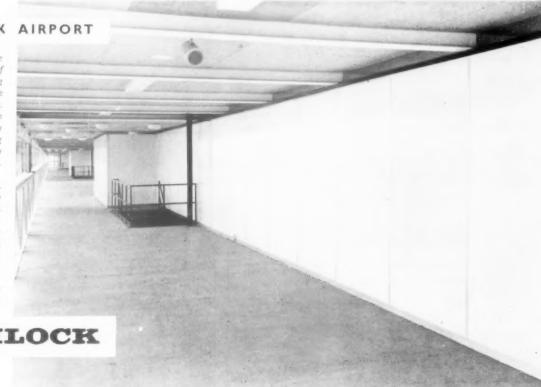
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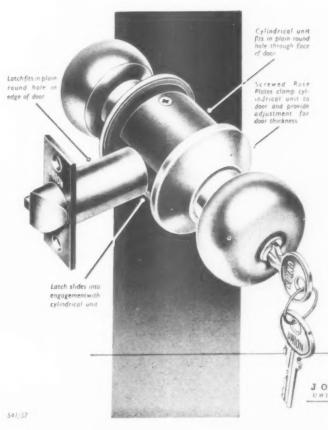
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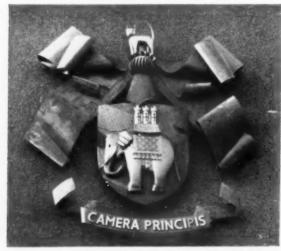
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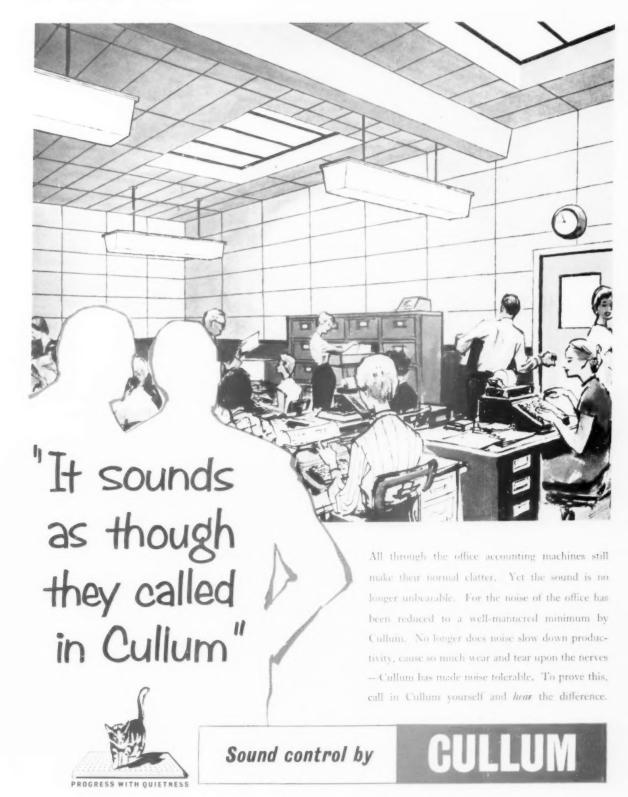


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